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LAGOS-KANO-JIBIYA (LAKAJI) CORRIDOR PERFORMANCE: BASELINE ASSESSMENT REPORT ON THE TIME AND COST TO TRANSPORT GOODS

NIGERIA EXPANDED TRADE AND TRANSPORT PROJECT (NEXTT)

June 2013

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DISCLAIMER

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ACRONYMS AND ABBREVIATIONS

APMT	APM Terminal Apapa
CCI	Clean Certificate of Inspection
CIF	Cost, insurance & freight
CISS	Comprehensive Import Supervision Scheme
CMG	Corridor Management Group
FOB	Free on board
GON	Government of Nigeria
ICD	Inland Container Depot
LAKAJI	Lagos-Kano-Jibiya
MARKETS	Maximizing Agricultural Revenues and Key Enterprises in Targeted States
MT	Metric ton
NAFDAC	National Agency for Food and Drug Administration
NARTO	Nigerian Association of Road Transport Owners
NIWA	Nigerian Inland Waterways Authority (NIWA)
NCS	Nigerian Customs Service
NEPC	Nigerian Export Promotion Council
NESS	Nigeria Export Supervision Scheme
NPA	Nigerian Port Authority
NRC	Nigerian Railway Corporation
NSC	Nigerian Shippers Council
NEXTT	Nigerian Expanded Trade and Transport Project
RAR	Risk Assessment Report
SON	Standards Organization of Nigeria
TEU	Twenty-foot equivalent unit
TCICT	Tin Can Island Container Terminal
USAID	United States Agency for International Development
USD	United States Dollars

CHAPTER 1: EXECUTIVE SUMMARY

As part of the U.S. Agency for International Development's Nigeria Expanded Trade and Transport (NEXTT) project, CARANA Corporation and its implementing partners conducted a corridor performance review focusing on the time and cost to import and export goods along the Lagos-Kano-Jibiya (LAKAJI) Corridor. This baseline assessment report is an update to an earlier version of this report conducted by USAID in 2010, with the goal of providing shippers, transporters, forwarders and government agencies operating along the Corridor an objective snapshot of the current situation in terms of cost and time of moving goods, so that issues impacting corridor efficiency may be appropriately addressed via improved corridor governance and appropriate investments.

On-site data collection research for this report was conducted by a core team of five researchers who traveled the length of the LAKAJI Corridor in a series of visits during February, March and April of 2013. The team collected data from different sites in the eight major Corridor states of Kaduna, Kano, Katsina, Kwara, Lagos, Niger, Ogun and Oyo, by interviewing over one hundred representatives of shipping companies, freight forwarders, transportation companies, truckers, train operators, dry port operators, rail operators, and numerous state and federal government representatives.

Major findings of the report include:

- It costs $3,041 and takes approximately 12.5 days to export a 20 foot container along the LAKAJI Corridor.
- It costs $4,737 and takes approximately 19.5 days to import a 20 foot container along the LAKAJI Corridor.
- Over 60% of the time required to import and export goods via the LAKAJI corridor is attributable to delays.
- Approximately 50% of the cost to import and 40% of the cost to export is attributable to inefficiencies or informal payments.
- For imports, 15 out of 19.5 days required to import a 20' container are attributable to delays in the port (due to border clearance procedures), as well as the short transport segment from the port to Lagos warehouses.
- Transport from Lagos to Kano ($1,548) and freight forwarding fees ($885) incurred at the ports are the largest components of costs to import.
- Export costs are lower than import costs, but similarly distributed, with transport from Kano to Lagos ($837) and freight forwarding ($587) comprising the largest components.
- For imports, extra costs related to yard handling fees (including demurrage and storage) represent 78% of the total cost, driven by lengthy border clearance times. Extra costs related to transport from the port to Lagos warehouses represent 97% of the total cost.
- For exports, the major driver of extra costs is also transport between Lagos warehouses and the ports ($548), presenting 95% of the total cost of this part of the export process.
- Informal costs (non-receipted) represent approximately 3% of the total cost to import, or $162 per 20 foot container, with the majority incurred during border clearance and transport from Lagos warehouses to Kano.
- Informal costs from Kano to Jibiya are lower in absolute terms ($32), but higher in relative terms, and are reported to be positively correlated with the number of checkpoints on this stretch of the Corridor.
- Informal costs represent approximately 5% of total costs to export, and are valued at $139 per 20 foot container, accumulated at border clearance and checkpoints during road transport.

- Use of the Kano Inland Container Depot (ICD) and rail could potentially save $1,195 of the costs to import, and $816 of the costs to export.

Recommendations to improve LAKAJI Corridor performance and reduce costs of export and import include:

At Ports

To streamline border clearance and yard handling procedures:

- Implement Single Window and/or electronic dashboard for customs to enable monitoring of clearance processes
- Reform of Customs Risk Valuation system
- Support development of new (or replicate existing) container tracking systems

During Transportation

To reduce congestion and delays:

- Improve use of multimodal transport systems
- Extend rail lines into port terminals, requiring private concessions of rail lines
- Develop and use of ICDs in Ibadan and Kano encouraged
- Consider investment in loading parks
- Consider policies to encourage use of containers for transport to final destination point, skipping unloading stage
- Revisit truck movement policies in Lagos
- Look into development/implementation of container deposit insurance
- Consider improved or incentive-based trucking safety standards regulation and enforcement
- Encourage GPS monitoring systems for trucks
- Issue mandates to eliminate unauthorized/unnecessary checkpoints & appropriate enforcement of these

At a National Level

To improve transparency and efficiency of transport and logistics value chain:

- Encourage leadership to conduct more frequent data collection of costs and delays (including informal fees) along the Corridor
- Identify and communicate locations/sources of informal fees to address these appropriately
- Increase private sector involvement to advocate for improved transparency in the transport and logistics industry (i.e. Corridor Management Group, Nigerian Chapter of Borderless Alliance)
- Improve outreach on the legal processes and fees for import and export among transport and logistics value chain actors (i.e. Replicate West Africa Trade Hub experiences)
- Develop policies (public and private) to encourage more efficient use of trucks and backhauling
- Improve coordination of cargo movements (via freight exchange or similar mechanism)
- Revisit policies related to registration and operation of freight forwarders
- Encourage transparency through increased use of platforms for sharing data (i.e. websites, reports, etc.)
- Review and replicate international "best practices" in corridor management.

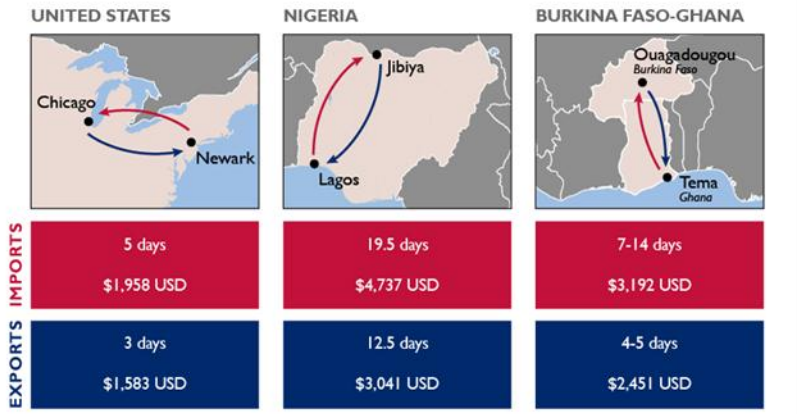
CHAPTER 2: SUMMARY OF FINDINGS AND RECOMMENDATIONS

In terms of the cost and time to trade goods along the corridor:

- It costs $3,041 and takes approximately 12.5 days to export a 20 foot container
- It costs $4,737 and takes approximately 19.5 days to import a 20 foot container

As shown in the figure below, the costs and time observed for both imports and exports in Nigeria compare unfavorably to corridors of similar length elsewhere in West Africa and in North America. Costs are nearly 25% higher for exports via the LAKAJI corridor as compared to the Ougadougou-Tema corridor and almost 100% higher than the Chicago-Newark corridor. And, while the corridor is only about 10-15% longer in distance, the time required is over 150% greater than for exporters using the Ouagadougou-Tema corridor and 300% greater as compared to Chicago-New York. This is even more remarkable when one considers that exporters using the Ouagadougou-Tema corridor are required to cross an international border, whereas LAKAJI is purely a domestic corridor.

Figure 1: Comparison of Transport Costs



Approximately 60% of the time required to import and export goods via the LAKAJI corridor is attributable to delays, while approximately 50% of the cost to import and 40% of the cost to export is attributable to inefficiencies or informal payments. For imports, a staggering 15 out of 19.5 days are attributable to delays in the port (most of which have to do with border clearance procedures), and the short transport segment from the port to Lagos warehouses, where goods are typically transferred to trucks destined for all points north. The study team looked at scenarios for goods moving through both Apapa and Tin Can Island container terminals and differences were minimal. There are longer delays at anchor in Apapa (16 hours) than Tin Can Island (5 hours), but both ports performed similarly against all other metrics.

In terms of cost, transport from Lagos to Kano ($1,548) and freight forwarding fees ($885) incurred at the ports are the largest components. Export costs are lower, but similarly distributed, with transport from Kano to Lagos ($837) and freight forwarding ($587) also comprising the largest components.

The research team looked at observed costs and segmented those into "extra costs" and "optimized costs" categories. Extra costs represent inefficiencies in both the import and export processes, as well as informal costs. Optimized costs represent the portion of observed costs that are comparable to a reasonable benchmark.[1] On the import side, extra costs related to yard handling fees (which include demurrage and storage) represent an extraordinary 78% of the total cost, driven by lengthy border clearance times of customs and other government entities and yard handling procedures by terminal operators. Extra costs related to transport from the port to Lagos warehouses represent 97% of the total cost, driven by congestion, transportation policy (such as limiting truck movement only to night hours), and limited reliance on containers for shipments once in-country. The major driver of extra costs on the export side is also transport between Lagos warehouses and the ports ($548), due to the same reasons (congestion, transportation policy, limited reliance on containers for export transportation) presenting 95% of the total cost of this part of the export process.

Informal costs (non-receipted) to import via Apapa and Tin Can Island are estimated at $162 per 20 foot container, with the majority of informal costs incurred during border clearance and transport from Lagos warehouses to Kano. Informal costs from Kano to Jibiya are lower in absolute terms ($32), but given the relatively short distance from Kano to Jibiya, this is a higher cost in relative terms. In total, informal costs represent approximately 3% of the total cost to import.

Informal costs related to exports are approximately $139 per 20 foot container, with the majority of costs accumulated at border clearance and from checkpoints encountered during road transport. These costs represent approximately 5% of total costs to export.

Tables 1-3 summarize all data collected as part of this baseline analysis, substantiating the findings discussed above.

Table 1: Import, Apapa, 20' Container

Corridor Segment	Observed Time and Cost of Delay	Time (hours)	Delay (hours)	Cost (US$/TEU)	Informal cost (US$/TEU)	Informal % of Total	Extra Cost (US$/TEU)	Extra % of Total
PORT SEGMENT	Anchorage and berthing	24	16	185	---	---	18	10%
	Unloading at berth	29	8.5					
	Anchorage and berthing total	53	24.5	185	---	---	18	10%
	Yard handling and storage	240	192	697	20	3%	544	78%
	Border clearance			361	50	14%	50	14%
	Forwarding			885	---	---	604	68%
	Shipping line release and delivery	48	24	99	---	---	---	---
	Port yard operations total	288	216	2042	70	3%	1198	59%
TRANSPORT SEGMENT	Transport Ports to Lagos Area	24	22	541	10	2%	524	97%
	Unloading/Loading Lagos	6	---	153	---	---	153	100%
	Transport Lagos Area to Kano	96	84	1548	50	3%	534	35%
	Transport Kano to Jibiya	4	1	268	32	12%	68	25%
	Transport Total	130	107	2510	92	4%	1279	51%
	TOTAL CORRIDOR	**471**	**347.5**	**4737**	**162**	**3%**	**2495**	**53%**

[1] Benchmarks are used to provide a measure of comparison of Nigeria's corridor performance with other countries. African countries with similar GDP per capita are used as benchmarks whenever possible to provide comparisons from an African context, and to assist Nigeria to compare its metrics to other countries that have implemented corridor performance or transport and logistics reform efforts (such as Durban and the Trans-Kalahari Corridor). In cases where data from a preferred source is not available, we use other countries for comparison.

Table 2: Import, Tin Can Island 20' Container

Corridor Segment	Observed Time and Cost of Delay	Time (hours)	Delay (hours)	Cost (US$/TEU)	Informal cost (US$/TEU)	Informal % of Total	Extra Cost (US$/TEU)	Extra % of Total
PORT SEGMENT	Anchorage and berthing	13	5	185	---	---	6	3%
	Unloading at berth	31.5	11					
	Anchorage and berthing total	44.5	16	185	---	---	6	3%
	Yard handling and storage	240	192	697	20	3%	544	78%
	Border clearance			361	50	14%	50	14%
	Forwarding			885	---	---	604	68%
	Shipping line release and delivery	48	24	99	---	---	---	---
	Port yard operations total	288	216	2042	70	3%	1198	59%
TRANSPORT SEGMENT	Transport Ports to Lagos Area	24	22	541	10	2%	524	97%
	Unloading/Loading Lagos	6	---	153	---	---	153	100%
	Transport Lagos Area to Kano	96	84	1548	50	3%	534	35%
	Transport Kano to Jibiya	4	1	268	32	12%	68	25%
	Transport Total	130	107	2510	92	4%	1279	51%
	TOTAL CORRIDOR	**463**	**339**	**4737**	**162**	**3%**	**2483**	**52%**

Table 3: Export, Apapa and Tin Can Island, 20' Container

Corridor Segment	Observed Time and Cost of Delay	Time (hours)	Delay (hours)	Cost (US$/TEU)	Informal cost (US$/TEU)	Informal % of Total	Extra Cost (US$/TEU)	Extra % of Total
TRANSPORT SEGMENT	Transport Jibiya to Kano	4	1	254	31	12%	66	26%
	Transport Kano to Lagos	96	84	837	48	6%	173	21%
	Transloading Lagos	72	0	318	0	0%	0	0%
	Transport Lagos to Ports	48	46	575	10	2%	548	95%
	Transport total	220	131	1984	89	4%	787	40%
PORT SEGMENT	Border clearance	48	44.5	187	50	27%	82	44%
	Forwarding			587	---	---	239	41%
	Yard handling			153	---	---	96	63%
	Port yard operations total	48	44.5	927	50	5%	417	45%
	Loading at berth	30	9.5	124	---	---	7	6%
	Channel operations	3	0	6	---	---	0	0%
	Anchorage and berthing total	33	9.5	130	---	---	7	5%
	TOTAL CORRIDOR	**301**	**185**	**3041**	**139**	**5%**	**1211**	**40%**

Recommendations to Improve Corridor Performance

We have organized the most frequently cited drivers of cost and the most significant costs and delays, the implications of these, and a list of preliminary recommendations to address these, into a table below for easy reference. These recommendations will be reviewed and discussed by stakeholders as part of the exercise to validate data collected for this study in late June 2013, in Nigeria.

Table 4: Drivers of Cost/Delays, Implications and Potential Solutions to Improve Corridor Performance

Drivers of Costs and Delays	Implications	Potential Solutions
At Ports		
Lengthy border clearance processes and yard handling procedures Multitude of agencies at the ports	Lengthy processes contributes to extra costs and delays for imports and exports The longer cargo is in the port increases opportunity to extract informal payments Each agency involved slows processing of cargo	Implement Single Window and/or electronic dashboard for customs to enable monitoring of clearance processes
Extensive physical inspection of cargo	Delays clearance procedures and contributes to high costs of import and export Increases opportunities to extract informal payments	Reform Customs Risk Valuation system
Lost containers at terminals due to lack of technology for tracking container movements	Financial losses due to lost containers Longer border clearance times contributing to both increased costs and delays	Support development of new (or replicate existing, such as APM) container tracking systems
During Transport		
Congestion between Lagos Ports and Warehouses Truck movement restricted to night only in Lagos Limited reliance on use of containers to transport goods	Costs and delays in transport driven higher Limited use of containers for transport requires stopping at warehouses for unloading and reloading of goods onto 30-ton trucks	Encourage use of multimodal transport Extend rail lines into port terminals (may require concessions of rail lines to private operators) Support development and use of ICDs in Ibadan and Kano Consider investing in loading parks Consider policies that will encourage use of containers for longer transport, skipping unloading stage Revisit truck movement policies
Congestion due to rush to return containers before fees are charged	Contributes to import delays Transport costs driven higher	Consider container deposit insurance

Drivers of Costs and Delays	Implications	Potential Solutions
Trucks breaking down on roads	Delay of shipments, increasing costs Increases congestion	Improve trucking safety standards regulation and enforcement
Lack of control over cargo once it is handed to truckers	Encourages use of escorts to accompany cargo, increasing logistics costs Limited information on location of cargo	Encourage GPS monitoring systems for trucks
High number of checkpoints along the corridor, manned by official and unofficial agencies	Contributes to delays in transport Increases costs of transport Increases opportunities to extract informal payments	Issue mandates to eliminate unauthorized/unnecessary checkpoints & conduct appropriate enforcement of these
National Level		
Lack of transparency in the transport and logistics value chain with regards to informal fees Unwillingness to share data	Each actor remains ignorant of the informal fees extracted by others in the value chain. If no one is knowledgeable, no one is implicated Contributes to costs of imports and exports Contributes to acceptance of status quo of informal payments	Conduct more frequent data collection of informal fees along the Corridor (i.e. Expand GIZ' TRIMS project to the LAKAJI Corridor) Identify and communicate transparently the locations/sources of informal fees to address these appropriately Improve outreach on the legal processes and fees for import and export among the transport and logistics value chain actors (i.e. Replicate West Africa Trade Hub information campaigns)
Limited controls on trucker movements	Efficiency in trucking remains limited Lack of transparency on trucker movements contributes to costs and delays	Encourage more efficient use of trucks to encourage backhauling Improve coordination of cargo movements (via freight exchange or similar mechanism)
Informality in provision of freight forwarding services	Increases the opportunity to extract informal fees, increasing costs of import and export Reduced tax income for the Nigerian government Uncompetitive playing field for registered freight forwarders	Revisit policies related to registration and operation of freight forwarders

Drivers of Costs and Delays	Implications	Potential Solutions
Limited data availability to easily track time/cost to trade Unwillingness to share data, among public and private entities for fear of reprisal	Continued difficulty in fully understanding the causes of transport and logistics inefficiencies Costs and delays that could be rectified are not, increasing these	Increase leadership in establishing set data points to collect and collecting these Improve data collection techniques and processes Develop and roll out platforms for sharing data (i.e. websites, etc.)
No one organization or institution currently serving as a strong voice for the transport and logistics industry	Inefficiencies in transport and logistics will not be addressed; costs and delays will remain higher than necessary	Increase private sector involvement to advocate for improved transparency in the transport and logistics industry Strengthen and expand Nigerian Chapter of the Borderless Alliance, with a working group on transport and logistics Strengthen and expand Corridor Management Group with private sector involvement focused on replicating "best practices" in corridor management.

CHAPTER 3: INTRODUCTION AND METHODOLOGY

3.1. BACKGROUND

In an effort to understand the dynamics of corridor performance, members of the NEXTT team conducted a series of on-site interviews between March and June 2013 to quantify the costs and time associated with trade along the LAKAJI Corridor. Data collection efforts continued after the Nigerian field work concluded from CARANA and Crown Agents offices in Arlington, London, Lagos and Abuja, in the lead up to writing this report. A total of 74 people were interviewed in person, and another three dozen were interviewed remotely or contacted via email to collect data for this study. The assessment was a collaborative effort between CARANA Corporation and Crown Agents USA, with strategic oversight and guidance provided by Nathan Van Dusen, and field research conducted by Amanda Grevey, Chris Starns, Osita Aniemeka, Solomon Ogunleye, and Ndaya Yelwa. The final report is authored principally by Amanda Grevey, with editing and research support from Amanda Fernandez, Anne Szender and Martina Fongyen. CARANA's Cynthia Almansi also contributed to the layout and editing of the report.

3.2. OBJECTIVE AND RATIONALE

The specific objective of the assessment is to: i) quantify transport and logistics inefficiencies along the LAKAJI Corridor relative to overall transport and logistics costs, and; ii) recommend and prioritize public and private strategies to address these problems.

Inefficiencies in transport and logistics systems are major obstacles to economic growth and development in West Africa. Inefficiencies increase supply chain costs directly, through high formal and informal prices, and indirectly, through opportunity costs and financial costs of delay. These costs reduce the competitiveness of exporting firms and increase prices paid by domestic consumers.

The benefits of improved flow of goods along the LAKAJI Corridor are numerous: exporters will be better positioned to compete in world markets; efficiency savings by importing companies and traders will be passed onto consumers in the form of lower prices; and reduced cost of food products in the domestic market will have a positive impact on food security. Improved official channels for cross-border trade will also incentivize formalization, benefitting informal traders through improved access to credit, as well as the broader economy, through the government's better capture of revenue lost due to smuggling.

Infrastructure deficits are recognized constraints to trade in Nigeria as elsewhere in the region. However, private sector and policy-related institutional solutions can be used to address the most pressing sources of inefficiency which compound infrastructure challenges. Through this study, we aim to provide recommendations on such solutions for reducing the cost of trade transactions.

3.3. METHODOLOGY

The assessment team traveled the length of the LAKAJI Corridor to catalogue transport and logistics conditions and conduct field interviews with various private sector and public sector stakeholders. Interviewees included trucking companies, freight forwarders/customs brokers, representatives of

shipping lines, terminal operators, business associations, unions, and private exporting and importing companies. Institutional and government stakeholders interviewed included the Nigerian Customs Service, the Ministry of Trade and Investment, the Nigerian Shippers Council, and the Nigerian Railway Commission. Interviews were used to collect data on the average values for formal and informal costs, as well as the time and delays taken for various procedures. Results are based on simple averages of data provided in interviews, screened for trustworthiness and credibility.

3.3.1. ARTICULATION OF RELEVANT COSTS

This study uses as its unit of analysis a standard 20 foot container of goods, and develops an estimate of the time (observed time) and costs (observed costs) of transporting a 20 foot container of goods along the LAKAJI Corridor. The study further identifies inefficiencies (or "extra costs") within the transport and logistics by comparing the existing, observed costs to international benchmarks, and also collects information on indirect costs that do not involve the disbursement of fees, but are generated through delays in the transport and logistics process. Observed time and observed costs are calculated for each stage in the transport and logistics process, including port yard procedures, customs, checkpoints and transport. Delays are also measured, and are considered extra time (within observed time) that is unnecessary or unjustified based on comparisons to international benchmarks.

Observed costs for imports include direct costs, which encompass both formal and informal costs. Formal costs are official fees and legitimate charges for handling and transport. Informal costs include bribes and un-receipted administrative charges.

Observed cost for exports is the average cost to move southbound exports from producer markets in the north of the corridor to clearing and loading at Lagos ports. Observed costs for exports are comprised of direct costs and indirect (financial) costs of delay.[2]

Extra costs include all informal charges and all indirect financial costs of delay, and any other observed costs deemed unnecessary, unjustified, or too expensive, in comparison to international benchmarks.[3] Optimized costs are the residual of the observed cost minus the extra cost.[4]

Table 5: Definitions of Time and Cost Categories

Time and cost categories	Definition
Observed time	Average time that was spent on an activity, assuming all things were working as usual.
Delays	Extra time (within the observed time) that is considered unnecessary or unjustified based on a variety of factors for each activity, including comparison to international benchmarks.

[2] The project's principal focus on export competitiveness and agriculture has led the team to arrive at a basket of export goods that we valued and then can derive an average financial cost of immobilized inventory as it concerns exporters of those goods. Given the project focus, inventory and financial costs are not similarly applied to imports for purposes of this study.

[3] As an example of an international benchmark, Teravinthorn and Raballand provide per ton kilometer charges for transport costs, which can be used as a proxy for what a more competitive transport sector could achieve.

[4] Product loss was not included in this analysis, which is an additional significant cost of inefficient transport and logistics.

Time and cost categories	Definition
Direct costs (as part of observed costs)[5]	Average fees actually paid for activities carried out, assuming that all things were working as usual. Includes formal (receipted) and informal (un-receipted) costs.
Indirect costs (financial cost)	Indirect costs are those do not involve the disbursement of fees. Financial cost is an indirect cost applied to exports. It is the financial cost due to delays in the transport and logistics process, and is calculated by multiplying the prevailing interest rate by time of delay by the value of the shipment.
Extra costs (direct and indirect)	Extra costs are calculated throughout all of the processes of exportation and importation, and include unnecessary direct costs (fees) applied to imports and exports, in addition to all unnecessary indirect costs applied to exports.
Optimized cost	The cost that would be experienced by the shipper if extra costs were removed. It is calculated by subtracting the extra cost from the observed cost.

A more detailed discussion on the methodology of developing baskets of goods for import and export are included in Annex 2.

[5] For imports, Observed Costs equal Direct Costs. For exports, Observed Costs include Direct Costs and Indirect Costs, or the Financial Cost.

CHAPTER 4: OVERVIEW OF LAKAJI CORRIDOR AND LAGOS PORT COMPLEX

Figure 2: Map of LAKAJI Corridor

4.1. DESCRIPTION OF LAKAJI CORRIDOR

The LAKAJI Corridor is a 1,225 km transport route that runs from Lagos in the South to Kano in the North, and then on to Jibiya at the border of Nigeria and Niger. The corridor has strategic importance for foreign trade, domestic trade, and regional trade. It is the main transport route used to move imports to northern Nigeria and exports to Lagos ports. The corridor links the country's largest agricultural market in the north (Kano) and the largest consumer market in the south (Lagos), serving as a vital conduit for the domestic food products.

The LAKAJI Corridor is multi-functional, serving as:

1. An "internal" corridor linking the larger producing areas of the northern and middle belt states to more populous southern states
2. An "export" corridor for shipping goods produced along the corridor to international and regional markets

3. An "import" corridor for food and other products destined for the middle and northern states and the Republic of Niger.

In the north, Kano serves as the trans-shipment hub linking Nigeria to the West African regional market. Time and costs identified in the transport segment for imports and exports can also be applied to goods traded in the domestic market, as these goods travel the same route.

According to data provided by the NPA, 80% of cargo passing through Apapa Port is destined for the Lagos Area, and only around 1% is destined for Kano.[6] Shippers expressed that the actual volume is much higher, however, because the majority of cargo that is shipped to Kano is transshipped at warehouses in Lagos, or changes hands at Lagos markets before moving north.

Official data on export origin for corridor states was more evenly split, with around 20% of exports originating in Lagos, 7% in Kano, 7% in Ogun, 7% in Oyo, and 1% in Kaduna. Again, these statistics likely underestimate cargo flows and follow on research is needed to paint a more realistic picture of cargo volumes on the LAKAJI Corridor.

The assessment team observed that the majority of products traveling north along the Corridor are imported consumer staples, intermediate goods such as construction materials, and fuel originating at the Lagos or Cotonou port complexes. Southbound shipments consist of mostly unprocessed or semi-processed agricultural commodities that are being processed in the south for both human consumption and, in the case of maize, for the rapidly growing poultry and aquaculture sectors. Key agricultural exports, such as cocoa and sesame, are also flowing south, for the most part in unprocessed form.

Table 6: Major Commodity Flows Along the LAKAJI Corridor

Major commodity flows along the LAKAJI corridor	
Northbound	Southbound
Rice Sugar Palm oil Fish Packaged foods Fuel Fertilizer Cement Construction material	Live cattle Maize Sorghum Millet Groundnuts Cashews Shea butter Cocoa Cotton Sesame

[6] Data was not provided for Tin Can Island.

4.2. TRANSPORT AND LOGISTICS INSTITUTIONAL FRAMEWORK[7]

A number of institutions are involved in the management of the ports and the transport and logistics sectors, listed below. A description of each institution is provided in Annex 3.

- **Federal Ministry of Transport** is responsible for marine transport (ports and inland waterways), railways, and federal mass transit.
- **Nigerian Ports Authority (NPA)** was created under the Nigerian Ports Authority Act No. 38, giving it powers and duties to manage and administer Nigerian ports.
- **Nigerian Maritime Administration and Safety Agency** is responsible for regulatory and promotional maritime mandates.
- **Nigerian Shippers Council** was established by the Nigerian Shippers Council Act of 1977 to promote and defend Nigerian shippers' interests in matters affecting the shipment of imports and exports to and from Nigeria.
- Establishment of the **National Transport Commission** is part of a Bill that continues to undergo consideration before passage into law.
- The **Nigerian Customs Services is** the government agency responsible for collecting Customs and excise duties and other fees, charges, and levies associated with international trade.

4.3. ROAD CONDITIONS[8]

The Lagos–Kano–Jibiya corridor is the major route for moving goods to the north of the country, for moving import and export commodities and supplying local markets, and for intrastate movement of cargo. Average annual daily traffic in the corridor ranges from 17,000 vehicles between Lagos and Ibadan in the south to 5,000 vehicles between Abuja and Kano in the north (in both directions). Heavy vehicles account for 10% to 14% of traffic.

Members of the study team traveled along the LAKAJI Corridor, observing the conditions of roads. For analytical purposes the corridor was divided into the following segments:

- Lagos Ports to the Lagos Metropolitan Area (25 km)[9]
- Lagos Metropolitan Area to Ibadan (115 km)
- Ibadan to Illorin (155 km)
- Illorin to Kaduna (485 km)
- Kaduna to Kano (230 km)
- Kano to Jibiya (215 km)

[7] Information in this section is taken directly from the USAID MARKETS *Transport Corridor Performance Analysis Final Report* of 2010.
[8] Information in this section relies heavily on the USAID MARKETS *Transport Corridor Performance Analysis Final Report* of 2010.
[9] Researchers used Ikeja as the distance market to determine the location of the Lagos Metropolitan Area, as many shippers have warehouses in this area.

LAGOS PORTS TO THE LAGOS METROPOLITAN AREA (25 KM)

Road into Lagos Ports

The road network in the Lagos metropolitan area is characterized by poor conditions and heavy and disorganized traffic, with the arteries to the ports constantly blocked. Cargo traffic volume in the metropolitan area can be divided in two categories: trucks that deliver the cargo to a destination within the city limits, and trucks that cross the city for hinterland destinations. In the first group, some trucks are responsible for the transfer of containers between the port and ICD. The rush to return containers to port to avoid losing one's container deposit (worth an estimated $478 for a 20' container) often causes significant blockages.

Some transport companies making container transfers prefer to work at night rather than spend time stuck in traffic during the day. Congestion is due mostly to the many trucks parked on the access roads to the ports waiting for business. Some drivers even conduct repairs on the road while waiting. Other non-port-related activities that contribute to congestion are collection of fees from loaded trucks by local government officials outside the port, harassment by law enforcement agencies collecting unofficial fees, mechanics repairing broken trucks, and public transportation vehicles partially blocking lanes. Additionally, road conditions are so poor that at times there is only one lane available for travel because of potholes, broken vehicles, or flooding (due to burst water pipes and the absence of gutters to control water).

LAGOS METROPOLITAN AREA TO IBADAN (115KM)

An estimated 20 million people live in the Lagos Metropolitan Area. The distance between Lagos and Ibadan is 115 km on a dual carriageway in fair condition, with two lanes and a very narrow emergency lane in each direction. Trucks park inappropriately on both sides of the route near small urban areas, causing congestion and sometimes leaving only one lane operational in each direction. Drainage along this segment seems inadequate, and when rainfall is heavy sections of the road flood. The team observed no major traffic disruption during their trip. However, researchers report that this segment of the road is often subject to increased traffic on religious holidays and floods, which when severe, can cause traffic stoppage for periods up to 24 hours.

IBADAN TO ILLORIN (155 KM)

Road between Ibadan and Illorin

In terms of congestion in the Ibadan urban area—and all urban areas along the corridor—the road between Ibadan and Illorin is heavily congested, disabled vehicles constantly block the road, and informal commercial activities abound on the roadside. However, leaving Ibadan, the Government of Nigeria recently completed the Dualization Project, linking Ibadan to Ilorin, and significantly reducing traffic volume on the main road.

ILLORIN TO KADUNA (485 KM)

Road conditions deteriorate between Illorin and Kaduna. This segment is reportedly the worst maintained stretch of road along the length of the LAKAJI Corridor. It is a single carriageway, with one lane in each direction, no emergency lane, with surfacing mainly of paved gravel and dirt.

After Ilorin, surface quality worsens and many segments are gravel in poor condition. Pavement, albeit in very poor condition, is found again after the junction that diverts traffic to Abuja or to Kaduna, 290 km after Ibadan. The gravel and paved segments are both heavily congested, and the entire route is vulnerable to flooding from heavy rain and inadequate sewerage overpasses that permit passage of only one vehicle at a time and are easily covered by rising storm waters.

A poorly maintained truck fleet also affects road transport in this segment. Most trucks using the Corridor are at least 10 years old and poorly maintained. Disabled trucks are common and block one of the two available lanes. When the disabled truck is also a fuel tanker that has caught fire, both lanes can be blocked for days at a time, during which time cargo movement is stalled. In some cases, when both traffic lanes are blocked, trucks and cargo owners cause more blockage as they transfer time-sensitive cargo to other trucks.

Heavy military roadblocks and checkpoints are found in Niger state, slowing traffic as vehicles are checked for security. The frequency of military roadblocks and checkpoints increases as travelers continue north.

KADUNA TO KANO (230 KM)

The road from Kaduna and Kano is a dual carriageway in good condition, with two lanes and an adequate emergency lane. A bypass 58 km from Kaduna allows drivers to avoid entering the urban area of Zaria. The bypass had no major delay or congestion. However, road and traffic conditions in and around Kano are poor. The roads are heavily congested and the main routes are visibly deteriorated.

Kano has approximately 12 million inhabitants and is the main point of destination or origin for cargo in the northern part of the country. Kano's International Airport is a main point of origin of cargo headed for all northern Nigeria destinations.

Military checkpoints are a frequent sight in both Kaduna and Kano states, as the military stops and checks cars for security infractions, slowing traffic.

KANO TO JIBIYA (215 KM)

The road from Kano to Jibiya is a single carriageway with one lane in each direction and an emergency lane big enough for disabled vehicles to stop without blocking traffic. This segment has a paved surface in fair condition. Although there is a sparse flow of trucks and cargo, traveling this segment took far longer than the Kaduna to Kano segment in terms of travel time given the high number of security checkpoints. The team encountered 21 checkpoints between Katsina town and Jibiya, almost one checkpoint per every two kilometers of road. Most cargo is moved informally in passenger vehicles; overloaded minivans and medium- to heavy-duty trucks are the main users of this portion of the corridor. In interviews, local drivers indicated that trucks move mainly at night on secondary gravel roads to cross the border and avoid customs.

4.4. RAIL

Nigeria's rail service from Lagos to Kano re-launched in early 2013, after improvements costing $166m. Once an efficient and cost-effective mode of haulage and passenger transport, Nigeria's rail system fell into disrepair after decades of decay and mismanagement. According to the Nigerian Railway Corporation (NRC), there are now 27-30 round-trip trains currently operating per day, which move both people and freight, although researchers involved in this study were unable to obtain accurate data on volume. Commodities moving north by rail include wheat (which comes direct from flour mills in Lagos), salt, sugar, fertilizer and cement. Commodity types moving south by rail are mainly livestock and agricultural produce, such as grains, maize, millet, beans and sorghum. The trip takes 30-48 hours on average, with trains traveling at speeds between 40-50 km/h. Demand for freight service is high, as is the demand for passenger service, and the NRC's target is to achieve 80-120 trains per day.

The government has contracted China Civil Engineering Construction Company Nigeria Ltd. to construct a standard gauge double track between Lagos and Ibadan, under the modernization of Lagos-Kano railway project. The NRC emphasized that they are investing in upgrading the rail system, as they prepare for public-private partnership (PPP) concessioning of the rail system into four autonomous railways:

- Western Railway: Lagos to Kano, including all branch lines when completed.
- Eastern Railway: Port Harcourt to Maiduguri, including Kaduna to Kafanchan link and all branch lines along the route.
- Central Railway: From Itakpe to Warri (through Ajaokuta); and
- Lagos Urban Rail Mass Transit

Before concessioning can happen, the 1955 Nigerian Railways Act, which confers exclusive right of ownership of the railways to the NRC, must be repealed. Though some opine that the NRC will not relinquish control of the rail system to the private sector, as of April 2013 a proposed bill to repeal the act prepared by the Minister of Transport was making its way through the office of the Attorney-General of the Federation.

4.5. INLAND CONTAINER DEPOTS

During a peak of congestion in the Lagos Port Complex in 2008, the Ministry of Transport was forced to take extreme action to decongest the port.[10] One action was the creation of Customs-bonded storage facilities known in Nigeria as ICDs. There are cost considerations to using ICDs; an earlier study commissioned by USAID found that the transfer from a marine terminal to an ICD cost as much as US$400 for one 40-ft container or US$300 for one 20-ft container, taking several days when trucks are not available. More than 20 ICDs were operational near the Lagos Port Complex in 2010, however the efficiency of these are questioned by most interviewed as part of this study given that they have not alleviated the transportation challenges surrounding Lagos.

However, there are six Inland Container Depots (ICDs) in the country located in Ibadan, Kano, Isiala-Ngwa, Jos, Maiduguri and Funtua. Two of these are located on the LAKAJI Corridor (Ibadan and Kano). Researchers found a functioning ICD in Kano, but shippers interviewed had little knowledge of the criteria for its usage. Shippers had higher hopes for the Ibadan ICD, concessioned to Catamaran Logistics, although not yet functional. If the improvements to the rail line come to fruition, containers could avoid Lagos congestion and travel under Nigerian Customs Service control by rail to Kano and Ibadan ICD sites.

The rail line needs to be extended at the ports in order for the rail and ICD system to be effective. At the time of publishing, APM Terminal was in discussion with the NRC to extend the line into their terminal, and expected the construction to be completed within the next year.

Single track rail line leading into Ibadan ICD

Ibadan ICD under construction

[10] In Nigeria, the term ICD has a broader definition than elsewhere. What is referred to in Nigeria as an ICD is simply a Customs-bonded storage facility. Goods travel under customs control to designated ICDs, where they are cleared by customs and picked up by transporters for delivery to their final destination.

4.6. LAGOS PORT COMPLEX: TERMINAL MAPS, TERMINAL OPERATORS[11]

The Port of Lagos is Nigeria's leading port. It has two main sections:

- Apapa Port, site of the main container terminal
- Tin Can Island Port

Apapa and Tin Can Island ports are located in Badagry Creek, which flows into Lagos Harbor from the west.

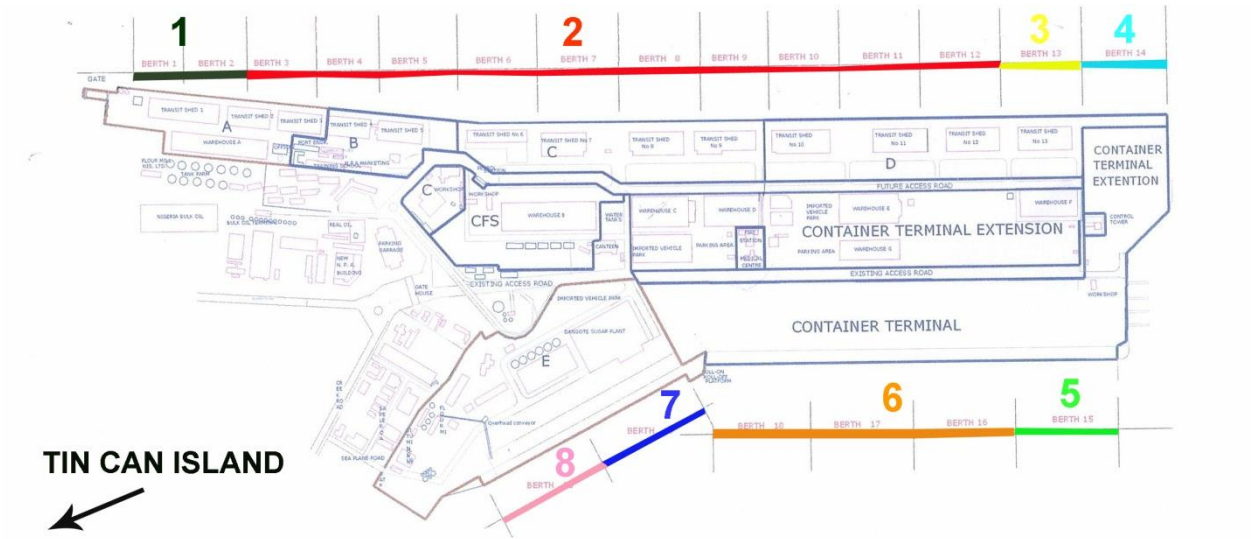
The port complex is administered by the Nigeria Ports Authority (NPA). The National Council on

Privatization is responsible for sector reform and privatization of government enterprises, and through its implementing agency, the Bureau of Public Enterprises (BPE), implemented port restructuring and concessions for terminal management and operations. The concession program subdivided Apapa and Tin Can Island ports into five terminals each and concessioned all marine terminals in both ports in 2006.

APAPA PORT

NPA manages the main Apapa entrance and grants access to all terminals.

Figure 3: Apapa Port Facilities Layout



Source: EXAF

[11] As the infrastructure has not changed significantly since 2010, this section relies heavily on the same information included in the *Lagos-Kano-Jibiya Transport Corridor Performance Analysis Final Report* conducted by USAID's MARKETS project in June 2010.

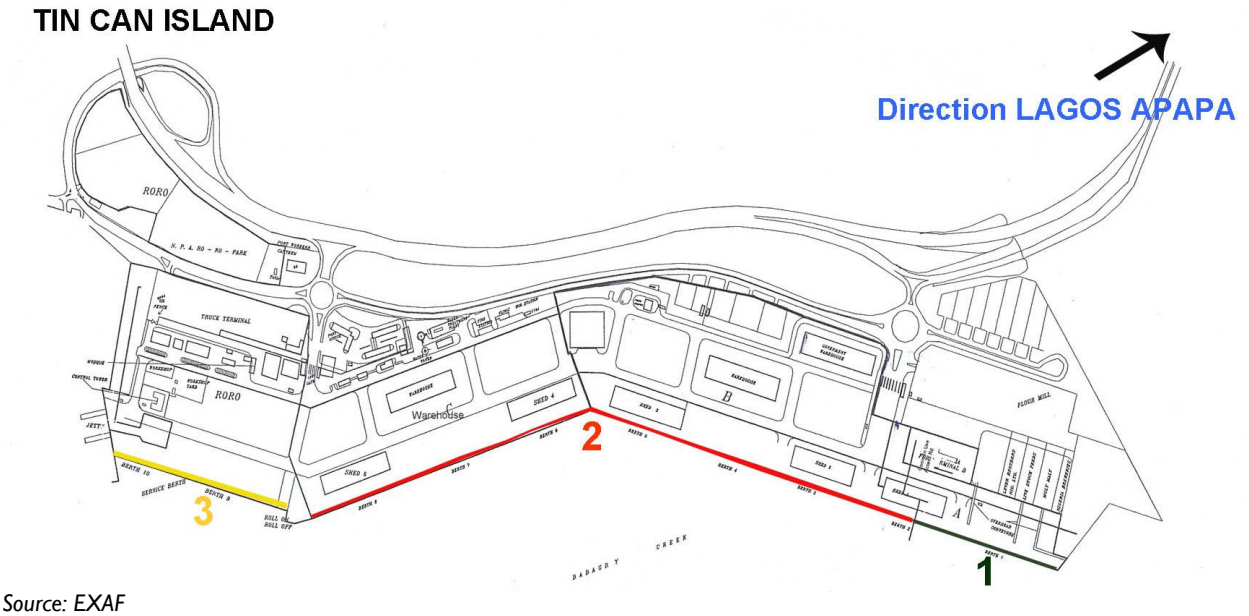
The original terminals were concessioned as follows:

- **Apapa Bulk Terminal Ltd.** is the concessionaire in areas designated Terminals A and B and using Berths 1–5. It handles bulk and general cargo, including commodities such as cement, clincker, wheat, and fertilizer. The terminal uses hydropneumatic unloaders and a conveying system around the clock in three shifts to move bulk cargo from ships' holds to silos and processing plants.
- **ENL Consortium** is the concessionaire for Terminals C and D (Figure 2-4), which include Berths 6–14. ENL handles and stores all types of cargo, including bulk, break-bulk, and containerized product. Major commodities serviced include bulk cement, bulk salt, frozen fish, steel products, bulk fertilizer, bagged rice, line and shipper's own containers, rolling vehicles, and all other break bulk[12] products, including liquid bulk.
- **APM Terminal** is the concessionaire for the container terminal and Berths 15–18. This terminal is the largest dedicated container terminal in West Africa. It started operating in 2006 but was not formally commissioned until June 2008. It can operate four vessels of up to 250-meter length overall at the same time. It operates at the berth and can serve geared and gearless vessels. It is the largest mobile crane-operated facility in West Africa and one of the only facilities able to accommodate the West Africa-Max (Wafmax) vessels.
- **Green View Development Nigeria Limited,** a subsidiary of the Dangote Group, acquired the management of Terminal E and Berths 19-20. The terminal handles bulk and general cargo.

TIN CAN ISLAND PORT COMPLEX

Tin Can Island Port Complex resulted from the merger of roll-on, roll-off (ro-ro) services and Tin Can Island Port during the reform of 2006. Four terminals are under concession and one was developed under a BOT scheme operated by Ports and Terminal Multiservices Ltd. (PTML).

Figure 4: Tin Can Island Port Facilities Layout



Source: EXAF

[12] The terms "break bulk" and "general cargo" have the same meaning and are used interchangeably.

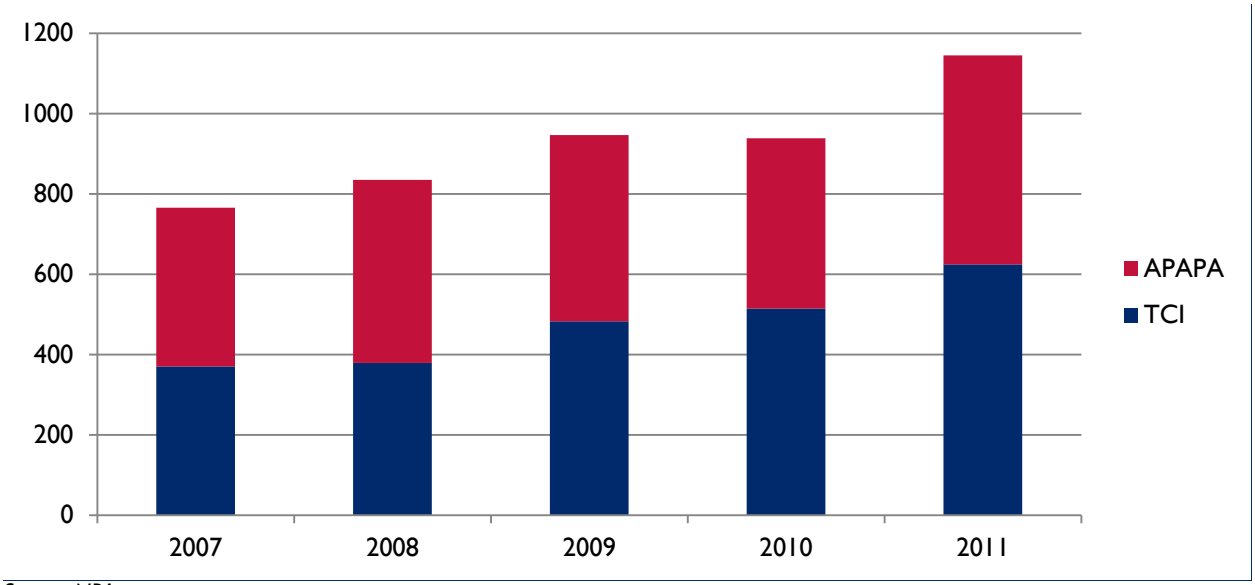
Under a 10-year concession, Joseph Dam and Sons Nigeria Limited handle bulk and general cargo at Berths 1 and 2 with about 480 m of quay length and a terminal area of about 6 hectares.

- **Tin Can Island Container Terminal** operates containers at Berths 3–5 with a total quay length of 770 m (of which only 550 m are operational) and a terminal area of 25 hectares. The terminal operates mainly geared vessels. The concession to operate the terminal was granted for 15 years.
- **Ports and Cargo Logistics**, a subsidiary of Sifax Group, operates containers and general cargo at Berths 6–8 with more than 790 m of quay deck and about 17 hectares of terminal area. The concession was awarded for 10 years.
- **Five Star Logistics Ltd**, a consortium of Comet Shipping Agencies Nigeria Ltd and its partners, operates the ro-ro terminal using Berths 9–10 with a total length of 440 m and a terminal area of 19 hectares. The terminal handles vehicles, containers, and break bulk cargo. Five Star Logistics will operate it for 15 years.
- **PTML**, a subsidiary of the Italian company Grimaldi Lines, agreed with the government of Nigeria to build, operate, and transfer a new terminal in Tin Can Island. PTML funded terminal construction, and in return it will operate the terminal for 25 years before transferring the concession to the NPA. Construction included one new berth of 220 m, the paving of 220,000 sq m, a second 200-meter berth, the reclamation of 40,000 sq m of terminal area, and the provision of all other necessary infrastructure. The multipurpose facilities handle vehicles, containers, project cargo, and less-than-container-load cargo.

4.6.1. CARGO THROUGHPUT AND VOLUMES FOR BOTH PORTS

This section describes the volume of all exports and imports passing through both Apapa and Tin Can ports. Below we provide a bar graph of this volume between 2007 and 2011, the latest year data is available.

Figure 5: Port of Lagos Containerized Cargo Throughput (Thousand TEU)



Source: NPA

As is demonstrated by the above bar graph, throughput has increased for both ports between 2007 and 2011. Although no official data is available to confirm this assertion, a number of participants interviewed as part of this study reported that in their opinion, throughput has decreased in 2012 given increased security concerns. Another opinion shared with researchers is that levies on staple goods (both real and anticipated) are also affecting total import and export traffic.

4.6.2. CONTAINER TRAFFIC 2011 FOR BOTH PORTS

To measure the volume of container traffic to Nigeria's Apapa and Tin Can ports, the table below provides a quick reference to each port, the flow of container traffic at each, and inward and outward traffic.

Table 7: Container Flows at Apapa and Tin Can Island Ports

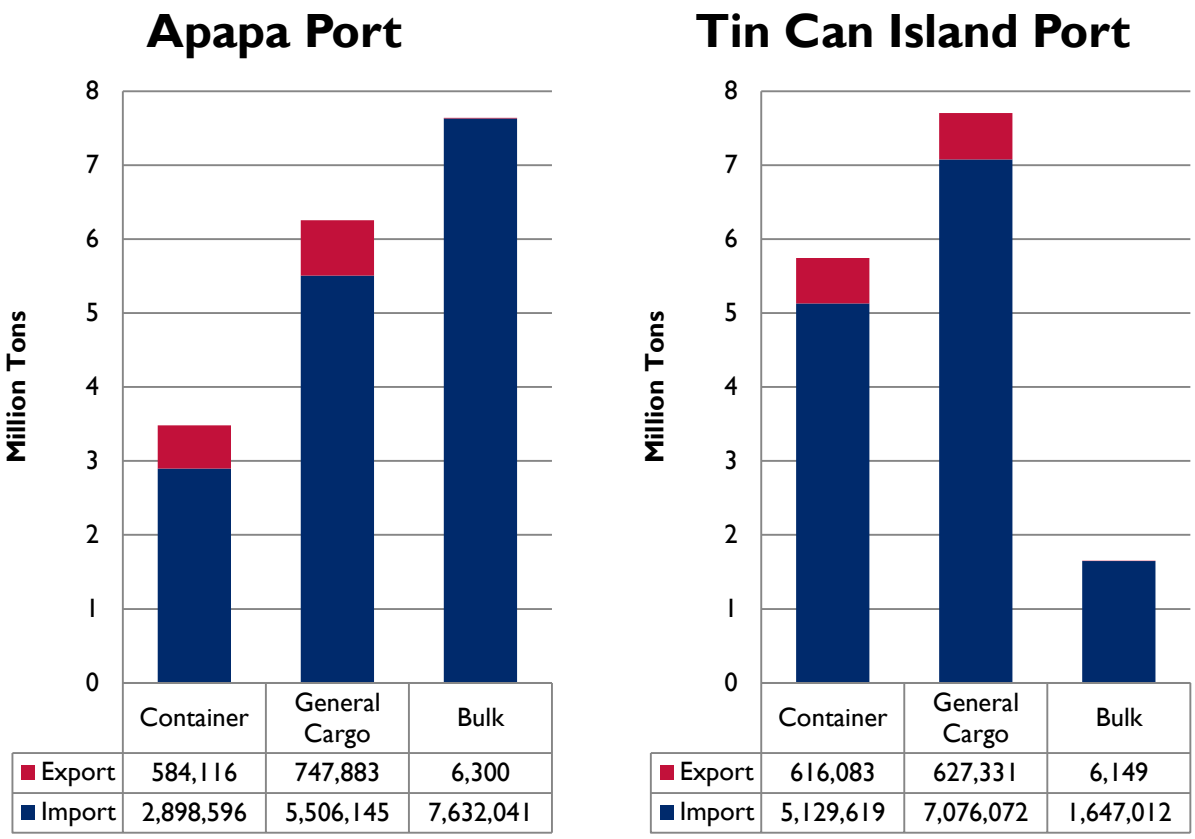
Port	Inward (imported)				Outward (exported)			
	No. empties	Laden		T.E.U.	No. empties	Laden		T.E.U.
		No.	Tonn.			No.	Tonn.	
Apapa	2	211,149	2,898,596	297,504	183,290	31,055	584,116	39,360
Tin Can Island	6	266,629	5,129,619	376,728	203,323	32,244	616,083	44,141

Source: NPA

As can be seen from the above chart, almost no containers are imported empty to either Apapa or Tin Can, but hundreds of thousands of containers leave Nigeria empty from both ports, demonstrating the trade imbalance that Nigeria maintains between imports and non-oil exports of containerized goods. Lack of ability of shipping lines to reutilize empty containers at other hub ports or key points of cargo origin once discharged is one of the factors driving high freight rates to countries such as Nigeria.

Another metric to measure volume passing through ports and efficiency of this is to measure cargo throughput. In terms of total cargo throughput by handling mode at these ports, Apapa Port handles mostly bulk imports, while Tin Can Island handles mostly general cargo and containers.

Figure 6: Cargo Throughput by Handling Mode, Apapa Port and Tin Can Island Port, 2011 (Tons)



Source: Nigerian Ports Authority

General Cargo is break bulk cargo that is loose and must be loaded individually rather than in bulk or in containers. Bulk cargo is commodity cargo that is transported unpackaged in large quantities. Given improved security, easier cargo handling, increased options for transport, protection of cargo, limited ability to tamper with contents, ease in shipping on standard/regular shipping services, and easier cargo tallying, international best practices suggest that countries should rely more heavily on containers to transport goods, versus general cargo or bulk cargo. Increased use of containers would reduce the costs related to both imports and exports to and from Nigeria. However, not all high-volume cargo is suitable for containers (i.e. oil).

The capacity of a port terminal is defined as the maximum traffic it can handle in a given scenario. There are various concepts of capacity, determined by the economic optimization of facilities, facility saturation, and the minimum acceptable quality of service perceived by clients. Capacity calculation is an important port terminal planning tool. There are a number of ways to measure capacity calculation, including berth capacity and storage capacity. Regarding berth capacity, having an acceptable berth occupancy ratio is an important metric to measure port capacity and efficiency.[13]

[13] UNCTAD Presentation on *The Capacity in Container Port Terminals*, December 12, 2012.

Table 8: Berth Occupancy Rates (%) at Nigerian ports in 2010 and 2011

Port / terminal	2011		2010	
	Occupancy	Vacancy	Occupancy	Vacancy
Apapa	64.14	35.86	61.87	38.13
Tin Can Island	69.00	31.00	70.76	29.24

The berth occupancy rate is frequently used in port project appraisals. The term indicates the degree of utilization of available berths. It is calculated simply by including the number of ship arrivals each year divided by the number of berths times 100. The port's utilization will increase if the average number of ships each berth can service per day increases (or the average time per ship decreases) and/or the number of berths increases. Countries should strive for the occupancy rate to be as high as possible, without negatively affecting berth wait time, maximizing the ports' throughput.[14]

[14] From *The Optimum Port Capacity*, by World Bank Economists Jan de Weille and Anandarup Ray.

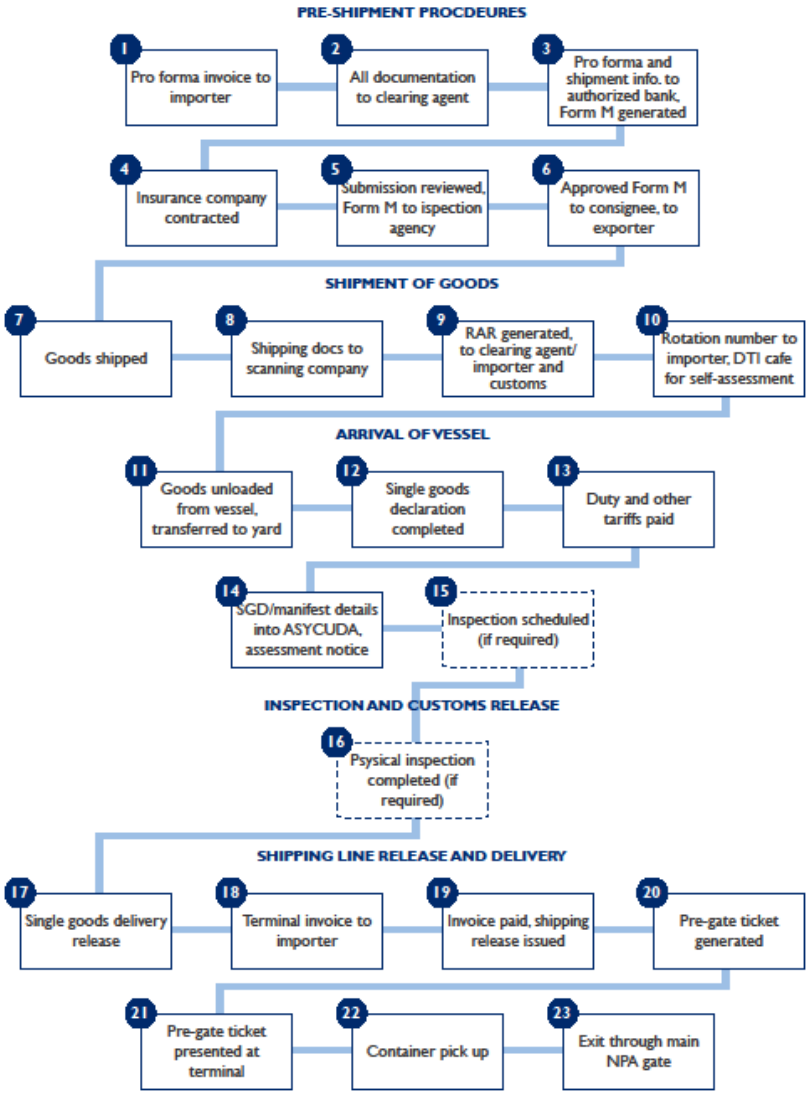
CHAPTER 5: IMPORTS: LOGISTICS PROCESSES, COSTS, AND DELAYS

This section analyzes the import process and all of the costs incurred, as they apply to the import basket previously established. Time and cost are reported from the port through distribution markets in Kano, and onto Jibiya at the Niger border.

5.1. IMPORT PROCESS

The following is a flow chart of the process to import items from the moment the ship enters Nigerian waters to the point of distribution in the destination city. A detailed description of the steps required in the import (and export) process is provided in Annex 4.

Figure 7: Flow Chart of Import Processes



5.2. SEGMENT 1: PORT

5.2.1. SCENARIO 1: APAPA, 20' CONTAINER

The following scenario measures the time and cost related to importing a 20 foot container at Apapa port. Data for APM Terminal is used as a proxy for all containers at Apapa Port.

5.2.1.1. OBSERVED TIME AND DELAY

Observed time to import is the average time that was spent each component of the port segment, assuming all things were working as usual. Time is measured from when the vessel arrives at anchor until the truck carrying the cargo passes through the port gates. Delays are extra time within the observed time that is considered unnecessary or unjustified based on a variety of factors for each activity, including comparison to international benchmarks.

Table 9: Observed time and delay to the shipper in the port segment of the import logistics chain: 20' Container, Apapa Port[15]

Component	Observed time (hours)	Delay (hours)
Anchorage and berthing	24	16
Unloading at berth	29	8.5
Anchorage and berthing total	53	24.5
Yard handling and storage	240	192
Border clearance		
Forwarding		
Shipping line release and delivery	48	24
Port yard operations total	288	216
Total	341	240.5

Anchorage and Berthing

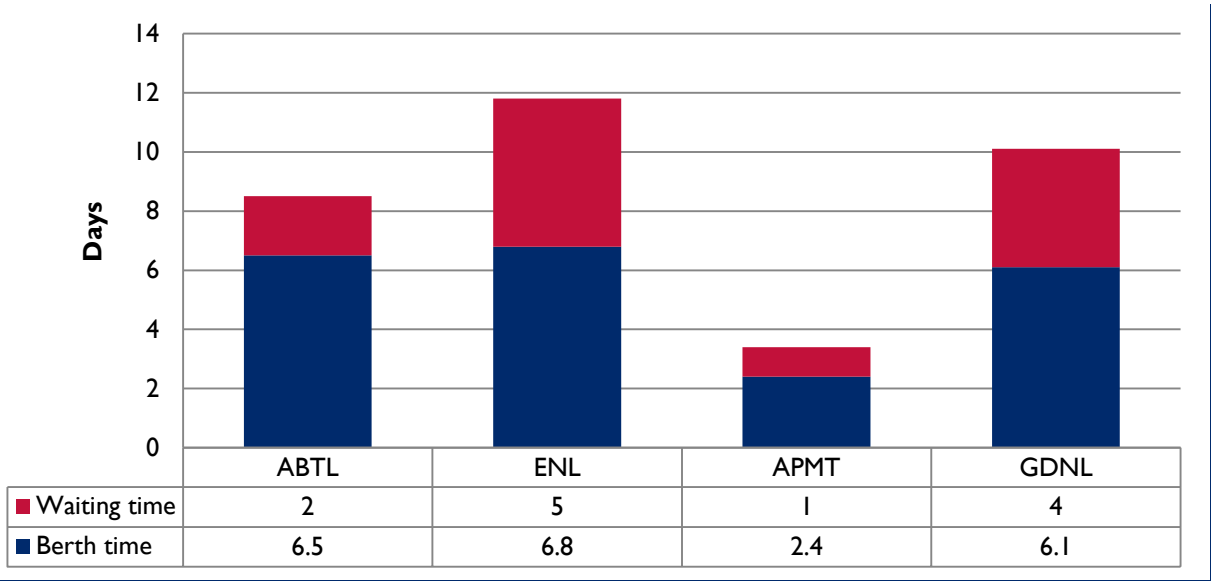
Anchorage and berthing time includes a vessel's waiting time at anchor, channel navigation time and berthing time. At Apapa Port anchorage and berthing time is primarily comprised of the average waiting time at anchor, since channel navigation time is negligible.

According to statistics provided by NPA, average waiting time at anchor was one day at APM Terminal in 2012.[16] This represents a significant improvement in container ship wait time since the terminal was concessioned in 2006, when vessel waiting time was close to 24 days. APM Terminal also had the lowest vessel waiting time of all terminals at Apapa. In 2012, the average waiting time was 3 days for ABTL, ENL, APMT, and GDNL, with the highest wait time at ENL (see figure below).

[15] Data for Anchorage and berthing and unloading at berth at APM Terminal was provided by NPA. Data on border clearance was provided in interviews with freight forwarders, shippers, terminals and shipping lines. Average dwell time was provided by APMT. Yard handling and storage is calculated as a residual of dwell time minus border clearance and storage time.

[16] NPA official statistics are used in the analysis, however these conflict with the current estimated wait time provided by APM Terminal (5 hours).

Figure 8: Apapa Port Turnaround Time (Waiting Time + Berth Time), January - December 2012 (days)



	ABTL	ENL	APMT	GDNL
Waiting time	2	5	1	4
Berth time	6.5	6.8	2.4	6.1

Source: Nigerian Ports Authority

Apapa already performs better than other West African countries on waiting time at anchor. In 2010, waiting time at anchor for Tema was 41 hours.[17] Ideally vessel waiting time should be as low as possible. Using the 8 hour waiting time experienced at the Port of Maputo as a benchmark for what could be obtained with even greater efficiency gains, the delay at Apapa is 16 hours.[18]

Unloading at Berth

Unloading at berth is approximately half the average berth time for container ships, since empty containers are loaded onto the ship in near equal numbers as the number of imports. The average berth time at APMT was 58 hours in 2012. Therefore the average unloading time for container vessels calling Apapa Port is estimated to be 29 hours.

In comparison to the 20.5 hrs it takes to unload a container vessel at Tema Port, the delay at Apapa is 8.5 hours.[19] The source of delay may be due to productivity of ship to shore operations. APM Terminal did not provide operational productivity data so we are unable to pinpoint the cause of longer unloading time at Apapa.

Yard Handling, Border Clearance, and Forwarding

We have a single time figure for yard handling, border clearance, and forwarding, since these processes overlap. The entire border clearance process takes 240 hours (10 days), beginning when cargo is moved from the terminal to the yard, and ending when customs release is issued. Included in these 10 days are time spent completing the Single Goods Declaration, customs identification of the level of inspection

[17] USAID "West Africa Transport Logistics Analysis Using FastPath: Tema-Ouagadougou Corridor (January 2010).
[18] USAID MARKETS Lagos-Kano-Jibiya Transport Corridor Analysis (2010)
[19] USAID "West Africa Transport Logistics Analysis Using FastPath: Tema-Ouagadougou Corridor (January 2010).

required, booking and waiting for a window for physical inspection, and the inspection process itself, which usually takes several days. Customs clearance processes for imports are detailed in Annex 4.

Benchmarking against Nigeria's 48 hour clearance goal, delay in clearance is considered to be 192 hours.

According to APM Terminal, the average dwell time for import containers is currently 12.5 days. This is a considerable improvement from the 20 day average dwell time experienced in 2008.[20] This includes 12 days of operational dwell time (time to unload the vessel and store containers in the yard), and transactional dwell time (the time it takes to complete transactions between the importers, port services and customs). The remaining half a day is considered to be discretionary storage time.[21]

Figure 9: Container Dwell Time at Apapa Port: 12.5 days

Regarding delays, customs officials emphasized the need for adequate safety checks, and blamed the private sector's non-compliance with trading requirements as the reason for delays in border clearance. Freight forwarders and compliant shippers pointed to the high-level of physical inspection, estimated to be 70% of all imports, as a major source of delays.[22] They also maintained that physical inspection of cargo creates more opportunities for customs and other government agency officials to obtain bribes. One terminal operator said that they experienced an increased level of physical examinations when cargo volumes dropped 20% from the peak volumes the previous year. This was believed to have occurred due to a fear of loss of payments.

In recent years, more cargo has been routed through scanners, and the percent of physical inspections has been reduced from 100%. Initially, this had good results: interviewees said that in the latter half of 2012, customs clearance time had fallen to 48 hours for scanned cargo. However, terminal operators expressed the need for more investment in scanning equipment, as queues for scanning now create bottlenecks which can perversely create longer delays than physical examinations.

Also slowing the border clearance process is a multitude of agencies at the ports, each with their own administrative requirements and fees. Freight forwarders noted that containers can be re-examined multiple times by different agencies, and although customs is the most visible, other agencies are often holding up the process. In 2011, the Minister of Finance reduced the number of Agencies at the port from fourteen to six, in order to facilitate faster clearance. Still, interfacing with the remaining six agencies delays procedures, and some of the eight removed agencies, including National Agency for Food and Drug Administration and Control (NAFDAC) and the Standards Organization of Nigeria

[20] USAID MARKETS Lagos-Kano-Jibiya Transport Corridor Analysis (2010)
[21] Discretionary storage is calculated by subtracting the operational and transactional dwell time from total dwell time.
[22] According to NCS approximately 60% of containers are physically examined, 30% are scanned, and 10 percent are Fast Tracked. However, interviews with freight forwarders suggested that at least an additional 10% are re-routed for physical examination after being scanned. Some respondents suggested that nearly all containers are physically examined. We have interpreted this to mean that at a meaning that at a minimum, 70% of containers at Apapa are physically examined.

(SON), continue interest in operating at the ports. A single window environment could potentially assist in facilitating smoother import procedures.

Shippers also point to the lack of automation used at the ports and a major bottleneck. Despite the implementation of ASYCUDA, which is viewed as a great success in speeding up the clearance process, often times processes are still conducted manually. When the server crashes, which was estimated to be 3-4 times a month, generally for a matter of hours, operations are grounded.

Lost or misplaced containers were also said to be a cause of delay during border clearance. APM Terminal is introducing GPS tracking for containers to address this bottleneck.

Shipping Line Release and Delivery

It generally takes around 2 days for a freight forwarder to pay shipping agent and terminal invoices and obtain delivery of their cargo. In comparison to regional best practice, delay is considered to be 24 hours. At Tema port it takes 6 hours including delays.[23] At the port of Durban, it takes one day for shippers to arrange land transport and complete exit procedures.[24]

5.2.1.2. DIRECT COST

Direct costs are the average fees actually paid for import activities carried out, assuming that all things are working as usual. Direct costs include all formal (receipted) and informal (un-receipted costs).

Table 10: Direct cost to the shipper in the port segment of the import logistics chain: 20' Container Apapa Port

Component	Formal Cost (USD/TEU)	Informal cost (US$/TEU)	Direct Cost to Shipper (US$/TEU)
Anchorage and berthing	185	0	185
Unloading at berth			
Anchorage and berthing total	185	0	185
Yard handling	677	20	697
Border Clearance	311	50	361
Forwarding	955	Included above	885
Shipping line release and delivery	99	0	99
Port yard operations total	2042	70	2042
TOTAL:			2228

Anchorage and Berthing

Anchorage, berthing, and unloading costs to the shipping line are passed on to the exporter in sea freight, and to the consignee in the shipping agency's $185 Destination Handling Charge (DHC).

Table 11: Anchorage and Berthing Costs

Anchorage and Berthing Costs	185
Shipping Agency charge	185

[23] USAID "West Africa Transport Logistics Analysis Using FastPath: Tema-Ouagadougou Corridor (January 2010).
[24] Kagare, Raballand and Ittmann "Cargo Dwell Time in Durban," World Bank, September 2011.

Yard Handling

Yard handling for a 20' container at Apapa Port and Tin Can Island costs $697. Within this amount are fees charged by terminal operators, including a $290 terminal handling charge (THC), a fee for positioning the container for customs examination, and a storage fee, which is charged until the container is removed from the ports.[25] Fees charged by the shipping agency include administrative fees such as a documentation fee, and a fee for container cleaning. Shippers are also charged demurrage by the Shipping Line. In Nigeria, demurrage and detention are wrapped into a single fee, which is charged until the container is returned to the ports. Storage and demurrage are a major cost component of containerized imports, with high fees caused by long delays in border clearance.

Interviews with freight forwarders and clearing agents identified that approximately $20 per TEU is paid in un-receipted facilitation fees to equipment operators at the terminal, in order to ensure that their cargo is moved quickly into the yard. Failing to provide such "tips" can mean that your cargo will be transferred more slowly.

Table 12: Yard Handling Charges

Detail of Yard Handling Charges	697
Terminal handling charge	290
Informal fees terminal/yard	20
Positioning customs exam	65
Shipping line administrative	48
Terminal storage fees	43
Demurrage/detention	231

Shipping lines charge a deposit for containers ($478 for a 20 foot container and $955 for a 40 foot container. Some have higher deposits for goods shipped outside Lagos). This charge is not included in the analysis, since the deposit is returned to the shipper upon return of the container. It should be recognized, however, that the deposit fee does affect logistics decisions made by the shipper as it represents working capital tied up until the container is returned. High container deposits and high transport time makes importers more likely to transship their goods in Lagos instead of transporting containerized.

Although not included in the analysis, cargo stemmed to ICDs, including Lily Pond Terminal, are subject to additional transfer charges. Please refer to Annex 6 for a list of additional charges.

Border Clearance

The observed cost for border clearance is $361. This includes a destination inspection fee from the Comprehensive Import Supervision Scheme (CISS) of 1% the FOB value of the shipment. Destination inspection programs are scheduled to expire in 2013, in which case this fee will no longer be applied.

[25] The fee for positioning for customs examination depends on whether the container is physically examined, scanned, or "Fast Tracked," and is included here as a weighted average based on the level of inspection typically experienced by shippers. Storage fees are charged on a two-tier scale, with days 1-3 free to the shipper. This analysis takes into consideration storage charged up until goods are available to be loaded to exit the truck. Demurrage is charged on a three-tier scale, with days 1-5 free to the shipper. The analysis takes into consideration demurrage charged until the consignee takes physical delivery of the goods, plus an additional 3 days, in order to include the average truck turnaround time for a container destined for a warehouse in the Lagos area.

Imports in Nigeria are also subject to a host of import duties based on the HS Code of the goods, a Port Surcharge of 7% on top of the CIF and duty, levies on certain imports (such as sugar, rice, and cigarettes), and 5% VAT on top of the CIF, Duty, and all other charges. Although these are significant costs to the shipper and increase the cost of doing business in Nigeria, these costs are not included in the analysis because they are not transport and logistics costs. Nonetheless, it should be recognized that these fees, while viewed as an important source of government revenue, also increase the cost of compliance and create incentives for traders to engage in bribes and smuggling.

Clearing Agents pay $50 on average in informal, "facilitation" fees (unreceipted) to customs and other government agencies. Some use mobile phone air time cards instead of cash, which they slip on top of their documents in the long room to ensure their shipment gets processed quickly. Although these informal fees are paid by the freight forwarder, and are not directly billable to their client, it is assumed that these fees are passed onto shippers within freight forwarding fees. In practice, a variety of informal fees are paid to customs beyond these "facilitation fees," including payments used to negotiate the lowering of tariff duties and thus the cost of importing. Importers and clearing agents expressed that these practices are more common at Tin Can Island than Apapa Port, however they were reluctant to quantify these types of payments. Several interviewees said these additional informal fees could be as much as US$318 (NGN 50,000) for a 20' container. Other administrative fees include a MOWCA levy and NIPOST charge.

Table 13: Border Clearance Costs

Border Clearance Total Costs	361
CISS Destination Inspection	299
Informal customs fees	50
Other admin fees	12

Forwarding

Freight Forwarders and Clearing Agents charge on average US$955 (NGN 150,000) for customs clearance for a 20' container. This service includes processing the importer's Form M and handling issuance of the Risk Assessment Report (RAR) (NGN 50,000), handling all administrative processes, and arranging for transport (NGN 100,000). It does not include trucking costs, which are passed onto the shipper directly. Although the freight forwarder pays informal fees at the port directly, these informal fees are included above and thus subtracted from the average freight forwarding fee, resulting in an average fee of $885.

Table 14: Freight Forwarding Costs

Freight Forwarding Total Costs	885
Freight Forwarding fees (less informal fees)	885

Shipping Line Release and Delivery

Importers pay an Electronic Cargo Release fee to the shipping line, also known as Bill of Lading surrender /express release. The release process is now electronic, which allows shipper requests for cargo to be released at destination without the presentation of original Bill of Lading.

Importers must also pay a terminal delivery charge to the terminal operator.

Table 15: Shipping Line Release and Delivery Costs

Release and Delivery, incl:	99
Cargo release fee	64
Terminal delivery fee	36

5.3.1.3. EXTRA COST

In this scenario we consider the cost savings to the importer if extra costs at Apapa Port were eliminated.

Extra costs of $1,216 represent 55% of the total $2,227 incurred by importers of containerized cargo at Apapa Port.

Table 16: Apapa Port Extra Costs

Component	Observed Cost (U$S/TEU)	Observed Cost (% Total Port Costs)	Extra Cost (US$/TEU)	Extra Cost (% Observed Cost)
Anchorage and berthing	185	8%	18	10%
Yard handling	697	31%	544	78%
Border clearance	361	16%	50	14%
Forwarding	885	40%	604	68%
Shipping line release and delivery	99	4%	0	0%
Total	2227	100%	1216	55%

The largest absolute contributors to extra cost are the cost of freight forwarding and high fees incurred during yard handling, such as storage and demurrage fees driven by slow border clearance. Extra costs are also experienced during anchorage and berthing due to delays at anchor; during yard handling due to informal fees and high destination handling charges; and during border clearance due to informal fees paid to customs and other government agencies.

Figure 10: Extra Costs in the Port Segment for a 20' Container

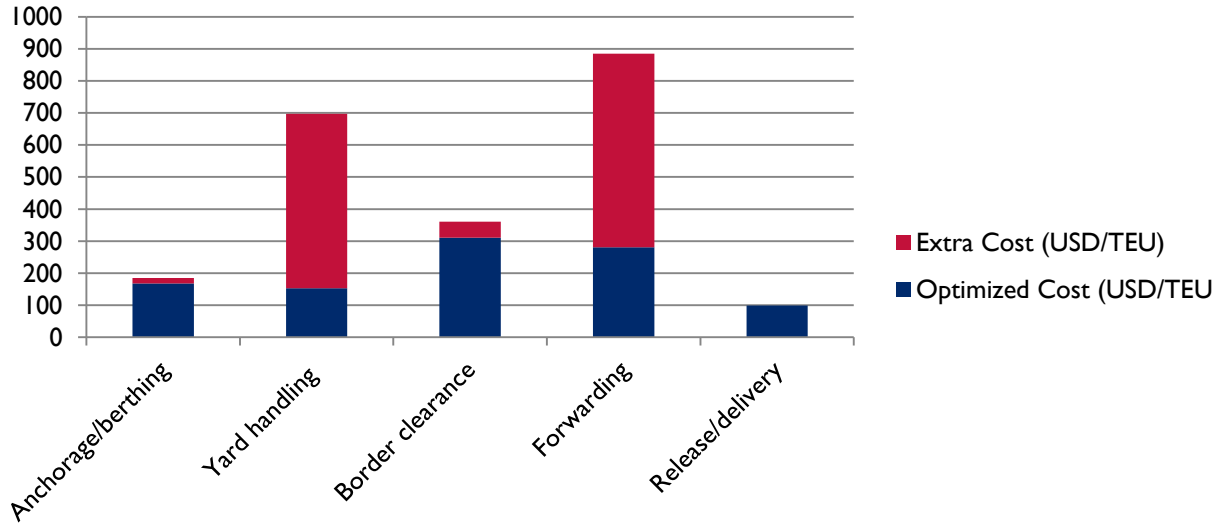


Table 17: Extra Costs for Anchorage and Berthing

Extra cost: Anchorage and berthing	Observed cost (US$/TEU	Optimized cost (US$/TEU)	Extra cost (US$/TEU)
Total:	185	167	18
Agency DHC	185	167	18

Vessel waiting time has significantly improved in the last few years. Nonetheless, a full day waiting at anchor is above what is considered global good practice. Using the 8 hour waiting time experienced in the Port of Maputo, Mozambique, as a benchmark,[26] the over cost per TEU for 16 additional hours at anchor are calculated to be $18 per TEU.

Shipping Lines pass the cost of waiting at anchor to the importer in their destination handling charge. The cost of keeping a vessel waiting at anchor is comprised of daily charter rate and operating costs. Using the Hamburg Shipbroker's Association (VHSS) *New ConTex* indicator, the daily charter rate is estimated to be $9,060 per day.[27] The average operating costs for a container vessel is estimated to be $9,583 per day.[28] With an estimated 700 full TEUs moved per stay of the ship, the average cost per TEU due to delays at anchor is calculated as $26.6 day, or $18 for 16 hours.

Also contributing to the shipping line fees are costs paid by the shipping line to the terminal operators and to NPA. Since the shipping line must recover these costs, we assume that they are passed onto the importer in the Agency DHC. These include Ship Dues (also referred to as "Port Dues") which are paid to NPA, Berth Rent, which is paid to NPA, Cargo Dues, paid to terminal operators, and additional charges for Port Infrastructure, including harbor dues and an environmental protection levy. For the purpose of the analysis, we assume that all shipping line fees are allocated evenly between importers and exporters. The calculation of these fees is detailed in Annex 5. As is evident by the $180 in total fees, these charges substantially contribute to the high agency fee charged to importers.

Table 18: Costs Paid by the Shipping Line

Ship Dues	5.97
Berth Rent	0.21
Cargo Dues	90
Harbour Dues	80
Environmental Protection	3.63
Total	179.81

[26] USAID MARKETS Lagos-Kano-Jibiya Transport Corridor Analysis of 2010.
[27] The New ConTex is a company-independent Index of time charter rates for container ships. It is based on assessments of the current day charter rates of six selected container ship types, which are representative of their size categories: Type 1.100 TEU and Type 1.700 TEU with a charter period of one year, and the Types 2.500, 2.700, 3.500 and 4.250 TEU all with a charter period of two years. Ships calling Apapa range in size from 1800 TEU to 4500 TEU. The quoted figure is an average for the months of April and May 2013, and includes all New ConTex ship categories.
[28] Source: US Department of Transportation Marine Administration, "Comparison of US and Foreign Flag Operating Costs." In 2011 the majority of vessels calling Lagos were foreign flag carriers. Therefore cost figures used are for foreign ships.

Table 19: Extra Cost of Yard Handling

Extra cost: Yard handling	Observed cost (US$/TEU	Optimized cost (US$/TEU)	Extra cost (US$/TEU)
Total	697	153	544
Terminal handling	290	40	250
Terminal storage fees	43	0	43
Demurrage detention	231	0	231
Informal fees	20	0	20

Terminal handling charges are significantly higher in Nigeria than elsewhere in West Africa. At Tema Port in Ghana, the handling charge is $40 per TEU. We have benchmarked against this $40 fee to illustrate the extra expenses incurred at Apapa. Factors causing these high charges may include high fees payable to NPA by the terminal operators, although we were unable to confirm this information. Productivity of ship to shore operations may be driving costs upwards.

Regarding terminal storage and demurrage, if Apapa were to meet the stated goal of 48 hour clearance, shippers would experience significant cost savings due to eliminated storage and demurrage fees.

The Port of Durban undertook a major customs reform effort, which effectively eliminated transactional dwell time by making it easier for companies trying to comply with regulations, and making it harder and more expensive for those who did not want to comply.[29] It is possible to apply for an authorized economic operator status by completing detailed interviews and supplying transparent information on supply operations. These companies, which account for approximately 70-80% of total cargo, qualify for a 'green channel,' meaning they are able to remove cargo as soon as it is handled at the port. Total dwell time in Durban has been reduced to 4 days, with only 1 day taken for border clearance.

If Apapa Port were able to undertake similar reforms as those initiated at the Port of Durban, including risk valuation reform, implementation of a single window environment, and increased use of IT in border clearance, and thereby reduce clearing time to 48 hours, shippers would avoid paying $274 per TEU in storage and demurrage alone.

Informal fees paid to terminal equipment operators for preferential unloading and transitioning of cargo are also included as extra costs.

Table 20: Extra Costs of Border Clearance

Extra cost: Border clearance	Observed cost (US$/TEU	Optimized cost (US$/TEU)	Extra cost (US$/TEU)
Total	361	311	50
Informal customs fee	50	0	50

Informal fees paid to customs and other agencies are included as extra cost. As noted above, this is likely underestimated due to the underreporting of informal fees beyond "facilitation fees."

[29] Kagare, Raballand and Ittmann "Cargo Dwell Time in Durban," World Bank, September 2011

The CISS fee for imports is not included as an extra cost, but it is also not necessarily charged according to best practice. So called "user fees" can be a good way for developing countries to finance Customs and port operations. Ideally, however, they should meet the approximate cost of services rendered test. World Trade Organization (WTO) members such as Nigeria must meet the requirements of GATT Article VIII (1) which states that all administrative fees must be limited to the approximate cost of the services rendered. It is difficult for a flat percentage fee to meet this test because a flat percentage fee undercharges small value shipments and overcharges large value shipments.

Table 21: Extra Costs of Forwarding

Extra cost: Forwarding	Observed cost (US$/TEU	Optimized cost (US$/TEU)	Extra cost (US$/TEU)
Total	885	281	604
Freight Forwarding Fee	885	281	604

Freight forwarding rates are market rates for services. There is a vast supply of freight forwarders in Lagos, which puts downward pressure on prices and keeps rates competitive. Nonetheless, rates are higher in Lagos than elsewhere in West Africa. This may be due to complicated procedures, lack of transparency of procedures, and high turnaround time for shipments, which means that forwarders have to charge higher rates for handling fewer shipments.

According to the West Africa Trade Hub's 2010 report on Tema-Ouagadougu corridor, freight forwarding fees in Ghana were $281 (excluding informal payments) for the clearance of a 20' container of cooking oil. We use this as a benchmark for freight forwarding rates elsewhere in West Africa, although further research is needed on what is causing such high freight forwarding rates in Nigeria.

Table 22: Extra Costs of Release and Delivery

Extra cost: Release and delivery	Observed cost (US$/TEU	Optimized cost (US$/TEU)	Extra cost (US$/TEU)
Total	99	99	0

There are no extra costs identified during release and delivery. The shipping lines' telex electronic release charge has made the release faster and process more efficient, and the terminal delivery charge is competitive with regional rates.

5.2.2. SCENARIO 2: TIN CAN ISLAND 20' CONTAINER

5.2.2.1. OBSERVED TIME AND DELAY

Table 23: Observed Time and Delay at Tin Can Island[30]

Observed time and cost of delay	Hours	Delay
Anchorage and berthing	13	5
Unloading at berth	31.5	11
Anchorage and berthing total	44.5	16
Yard handling and storage	240	192
Border clearance		
Delivery and gate processing	48	24
Port yard operations total	288	216
Total	332.5	232

Anchorage and Berthing

Average anchorage and berthing time for containerized cargo at Tin Can Island is 13 hours.[31]. Using the 8 hour waiting time experienced at the Port of Maputo, Mozambique as a benchmark, the delay at Tin Can Island is 5 hours.

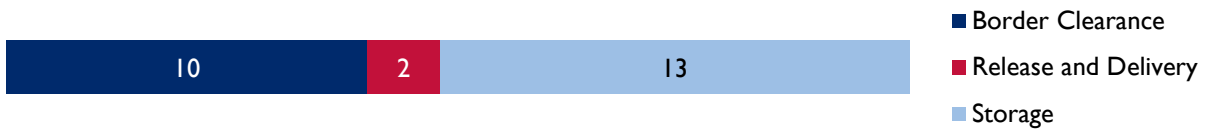
Unloading at Berth

Average berth time at Tin Can Island is 63 hours. Therefore average unloading time is 31.5 hours.

Yard Handling, Storage, and Border Clearance

According to estimates provided by TICT, PCHS and 5-Star Logistics, the weighted average dwell time by throughput at Tin Can Island is 25 days. This is nearly twice the dwell time of containerized cargo at APMT. The 25 day dwell time includes 10 days (240 hours) of yard handling and border clearance, and two days for shipping line release and delivery. The remainder is understood to be storage time. Benchmarking against Nigeria's 48 hour clearance goal, 192 hours are identified as delay.

Figure 11: Container Dwell Time at Tin Can Island (12 days)



[30] Data on anchorage and berthing, berth time, and dwell time was provided by TICT, PCHS, and 5 Star Logistics. Data on border clearance was provided by freight forwarders, shippers, terminals and shipping lines. Yard handling and storage is calculated as a residual of dwell time minus border clearance and storage time.
[31] NPA statistics on the average anchorage time for Tin Can Island for all handling modes (including Ro-Ro, bulk and liquid bulk) is 1 day

According to data provided by the terminal operators, the average dwell times for Tin Can Island are as follows: Tin Can Island Container Terminal, 25 days; Ports and Cargo Handling Services, 28 days; and 5 Star Logistics, 17 days. Total dwell time for Tin Can Island is calculated as a weighted average for these terminals based on container volumes.

Studies on high container dwell time in Sub-Saharan Africa suggest that high levels of discretionary storage are often due to terminal tariff structures which encourage use of the port as warehouse space.

In Nigeria, terminal operators have introduced progressive storage rates to discourage this practice. Rates jump from approximately $5 USD per-day for days 4-14, to $25 USD per-day at day 15, which is around the observed time that border clearance procedures are completed. Some shippers expressed that it does not make business sense to keep a container at port in Lagos longer than necessary, and the reason for additional storage time may be due to lack of funds to clear goods and inadequate access to credit facilities. Others suggested that the high figure for discretionary storage may be due to small and medium sized enterprises which do not have well-developed supply chain management strategies or their own warehouse facilities.

Nonetheless, it is unclear what is causing a higher dwell time at Tin Can than Apapa. Importers face approximately the same storage and demurrage fees as Tin Can as they do at Apapa, and these fees appear to be an effective deterrent against storage at APMT. If customs clearance is in fact the same amount of time at TCI as Apapa, the longer dwell time may be due to an operational productivity issue at the Tin Can Island terminals. Storage rates should also be compared to market rates for warehouse space in Lagos in order to better identify whether high discretionary storage is caused by operational backlog, or whether it is a cost-minimizing business decision made by importers.

5.2.2.2. DIRECT COST

Table 24: Direct Cost to Import at Tin Can Island

Direct Costs	Formal Cost (USD/TEU)	Informal cost (US$/TEU)	Direct Cost to Shipper (US$/TEU)
Anchorage and berthing	185	0	185
Unloading at berth			
Anchorage and berthing total	185	0	185
Yard handling	677	20	697
Border Clearance	311	50	361
Forwarding	955	Included above	885
Shipping line release and delivery	99	0	99
Port yard operations total	2042	70	2042
Total			2228

Costs incurred at Tin Can Island are the same as the costs incurred at Apapa Port.

This study takes into consideration storage and demurrage fees charged until goods are available to be picked up for removal from the ports, as discretionary storage time is understood to be a business decision made by the shipper. While not included as a cost for yard handling, keeping a container the full 25 average days of dwell time at Tin Can dramatically increases the demurrage and detention fees charged by the shipping line and the storage fees charged by the terminal operator. The demurrage and storage costs for a 20' container picked up after 12 days at Tin Can Island port are $274. These costs escalate to $989 after 25 days.

5.2.2.3. EXTRA COST

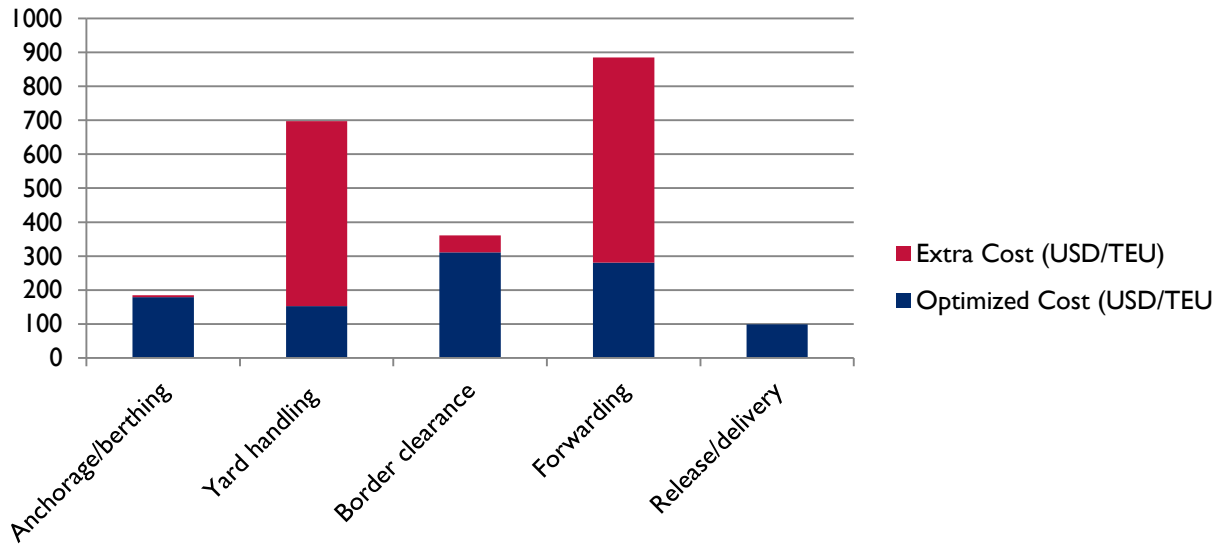
Extra costs of $1,204 represent 39 % of the total $2227 incurred by importers of containerized cargo at Tin Can Island.

Table 25: Extra Costs to Import at Tin Can Island

Component	Observed Cost (U$S/TEU)	Observed Cost (% Total Port Costs)	Extra Cost (US$/TEU)	Extra Cost (% Observed Cost)
Anchorage and berthing	185	8%	6	3%
Yard handling	697	30%	544	78%
Border clearance	361	17%	50	14%
Forwarding	885	41%	604	68%
Release and delivery	99	5%	0	0%
Total	2227	100%	1204	54%

As was observed at Apapa Port, the largest absolute contributors to extra cost are the cost of freight forwarding and high fees incurred during yard handling, such as storage and demurrage fees driven by slow border clearance. Extra costs are also experienced during anchorage and berthing due to delays at anchor, during yard handling due to informal fees and high destination handling charges, and during border clearance due to informal fees paid to customs and other government agencies. These costs are the same at Tin Can Island as at Apapa Port, with the exception of anchorage and berthing cost, which is lower due to lower waiting time at anchor at Tin Can Island.

Figure 12: Extra Cost in the Port Segment for a 20' Container at Tin Can Island



Anchorage and Berthing

Table 26: Extra Costs for Anchorage and Berthing, Tin Can Island

Extra cost: Anchorage and berthing	Observed cost (US$/TEU	Optimized cost (US$/TEU)	Extra cost (US$/TEU)
Total	185	179	6
Agency DHC	185	179	6

Given the average cost per container per day of waiting at anchor ($26.6/day) the cost for 9 hours of delay passed onto the shipper is $6 per TEU.

5.3. SEGMENT 2: TRANSPORT

5.3.1. OBSERVED TIME AND DELAY

Table 27: Transport Time and Delays from Lagos Port to Jibiya

Component	Observed time (hours)	Delay (hours)
Transport Ports to Lagos Area	24	22
Transloading Lagos	6	0
Transport Lagos Area to Kano	96	84
Transport Kano to Jibiya	4	1
Total	130	107

It takes approximately 130 hours (5.4 days) for the transport segment for an imported container.

Ports to Lagos Area

The majority of shippers surveyed transport goods to warehouses and loading areas in the Lagos area, where they unload the cargo and re-load it into a 30 ton truck. This is often the case for goods that travel North on the corridor, due to the high demurrage charges that would be incurred for an 11 day round trip to Jibiya and back. It takes on average one day to transport goods from Lagos Ports to warehouses 25 km away in the Lagos area. The average truck turn-around time is currently three days when shipping to a warehouse at this distance, with longer delays entering the ports than exiting. Interviewees said in the first quarter of 2012, turnaround time reached as high as five days. Delay is considered to be 22 hours, as it should take no longer than two hours to travel a distance of 25 km.

The primary source of delay is the extreme congestion near the ports, owing to high volume of traffic and dilapidated road infrastructure, among other issues. Abandoned trucks clog the Apapa/Oshodi Expressway and the access road to Tin Can Island Port and Apapa Port, posing safety risks to passersby and increasing the cost of doing business.

Transloading Lagos Area

Freight forwarders and shippers estimate that it takes six hours to unload a container and re-load it onto a 30 ton truck, using six people at a loading park. It takes half the time and double the cost to use 12 loaders.

Lagos Area to Kano

Transporting goods from a warehouse in the Lagos Area to Kano takes on average four full days, with the majority of shippers estimating somewhere between 3 and 5 days. Transport time varied widely however, and interviewees said that it can often take long as a week or more.

A multitude of road checkpoints and poor road conditions, particularly between Illorin and Kaduna, contribute to the high transport time. However, shippers express that poor safety regulation of the trucking industry and trucker unresponsiveness are the most important sources of delay. Trucking standards are not enforced (despite many road safety checkpoints along the journey) which allows poor quality trucks with frequent breakdowns to stay in use. Shippers complain that truckers take many breaks along the journey, and that they have no way of monitoring their cargo or verifying claims of blown out tires and other breakdowns. For their part, truckers are often not able to drive at night, due to insecurity on the roads.

If truckers were able to travel the highway speed limit of 120km per hour, it would only take 8 hours to drive from Lagos to Kano. Building in an extra 4 hours, the optimized journey should take no more than 12 hours. Therefore the delay is considered to be 84 hours, or 3.5 days.

Kano to Jibiya

The journey from Kano to Jibiya takes on average 4 hours. Freight forwarders and truckers said that drivers unwilling to pay informal fees at checkpoints experience additional delays beyond the average 4 hours. Benchmarking against the 3 hours it took the assessment team to travel this segment in a government convoy without having to stop at checkpoints, the average delay is identified as one hour.

5.3.2. DIRECT COST

Table 28: Direct Costs for the Transport Segment

Component	Formal cost (USD/TEU)	Informal cost (US$/TEU)	Direct cost to shipper (US$/TEU)	Cost per tkm
Transport Ports to Lagos Area	541	10	541	1.20
Transloading Lagos	153	0	153	N/A
Transport Lagos Area to Kano	1548	50	1548	0.09
Transport Kano to Jibiya	268	32	268	0.07
Total	2510	92	2510	0.11

The total observed cost for the transport segment is $2510 per TEU, including $92 paid in informal fees along the way. Informal fees are not invoiced to the freight forwarder or shipper, and are therefore passed onto the shipper in trucking rates.

Table 29: Trucking Rates for Transport Segment

	2013		2008
Trucking Rates	Vehicle cost (US$)	Cost per km (US$)	Cot per km (US$)
Transport Lagos to Ports	541	21.64	22.14
Transport Lagos to Kano	2420	2.46	2.48
Transport Kano to Jibiya	446	2.07	1.29

Source: 2013 data obtained in interviews with freight forwarders, truckers, and shippers. 2008 data is from USAID Markets LAKAJI Corridor Performance Analysis[32]

The above costs represent trucking fees per vehicle and are used to calculate the cost per TEU. While cost per tkm is the most precise benchmark for transport prices, it is also instructive to examine vehicle cost per km, since overloading practices vary in countries with minimal trucking regulation, such as Nigeria.

Table 30: Informal Fees per Transport Segment

Length (km)	Segment	Checkpoints	Informal fees (US$)	Informal fees per 100 km	Checkpoints per 100 km
115	Lagos to Ibadan	1	3	2.6	0.9
155	Ibadan to Ilorin	2	5	3.2	1.3
485	Illorin to Kaduna	20	51	10.5	4.1
230	Kaduna to Kano	10	25	10.9	4.3
215	Kano to Jibiya	21	54	25.1	9.8
1200	TOTAL Lagos Area to Jibiya	54	138	11.5	4.5

Approximately $138 in informal fees are paid on the long haul of the corridor from Lagos Area to Kano and on to Jibiya. Researchers found an average of 4.5 checkpoints per 100 km for the whole distance, with 11.5 paid every 100 km. Truckers report paying on average $2.5 per checkpoint (NGN 400). The highest number of checkpoints per km were reported between Kano and Jibiya.

Poorer quality roads reportedly have higher numbers of checkpoints, such as the stretch north of Illorin. Truckers from Kano report paying higher fees in the south and vice versa (truckers from the south report paying higher fees in the north).

The most frequently cited agencies and other parties collecting informal fees were local police and road safety, but more research is needed to refine this conclusion.

Laying nails in the road so cars cannot pass is another frequent tactic used to extract informal payments.

Types of informal charges extracted included fees as varied as "waste basket charge", "radio charge", and "safety enforcement." Interviewees report that expensive cars and nicer trucks get stopped more frequently, therefore incentivizing use of older, or poorer quality trucks.

[32] The USAID MARKETS LAKAJI Corridor rates are cost per TEU km. Since the study assumed a 20' container weighs 30 tons, the costs per TEU are comparable to the costs per vehicle in this study.
Based on web mapping technology and the research team's observations, we understand the distance from Jibiya to Kano to be 215km and the distance from Kano to Lagos to be 985 km. The USAID MARKETS LAKAJI Corridor report uses slightly different distance estimates for these two segments (205 km from Jibiya to Kano and 955 km from Kano to Lagos). This variation does not substantially affect cost analysis.

Ports to Lagos Area

The observed costs for transporting a 20' container from Lagos ports to a warehouse in the Lagos area is on average $541. Included in this amount is $10 in un-receipted fees paid by truckers to gate operators. Freight forwarders and truckers noted that gate fees vary depending upon a multitude of factors, including the personal relationship between the freight forwarder and the gate operator.

Transloading Lagos Area

Unloading the container and loading the shipment into a 30 ton truck costs on average $153 if the shipper is using six loaders. Loaders are paid per container, not per hour, which incentivizes faster loading. Each loader is paid NGN 4,000.[33]

Lagos Area to Kano

The trucking rate for a 30 ton truck from Lagos to Kano is $2,420, which is equivalent to $1,452 for an 18 ton container load. Many shippers and freight forwarders said that they pay to have an escort accompany their shipment, particularly on the long haul from Kano to Lagos. Lacking another method of monitoring and tracking, such as an electronic GPS system, this provides shippers with a point of contact who protect their shipment and notify them in case of any wrongful activity.

In a sample over 30 truckers, the average trucker experienced 44 checkpoints between Lagos and Kano, paying on average $3 (NGN 400) per checkpoint. The estimated informal fees for this segment of the journey is $84 per vehicle, or $50 per TEU. Some shippers avoid paying fees at checkpoints by paying for an additional police escort at state borders, where shippers are more likely to incur fees, which costs around $32 (NGN 5000) per escort.

Kano to Jibiya

Due to the low volume of trucks going all the way from Lagos to Jibiya, the assessment team obtained the cost of a truck from Kano to Jibiya, and uses this as a proxy for the transport cost for the final segment of the import journey. A 30 ton truck transporting cargo from Kano to Jibiya costs on average $446, which is equivalent to $268 per TEU. This segment of the corridor experienced the highest number of checkpoints per km, which is unsurprising due to cross-border security concerns. Given the average $3 paid per checkpoint, the total informal fees for this segment is estimated to be $21.

5.3.3. EXTRA COST

SCENARIO 1: IMPROVED ROAD TRANSPORT

In this scenario we consider the cost savings to the importer if extra costs on transport segment were eliminated. Extra costs of $1279 represent 51% of the total cost of the transport segment of the import logistics chain.

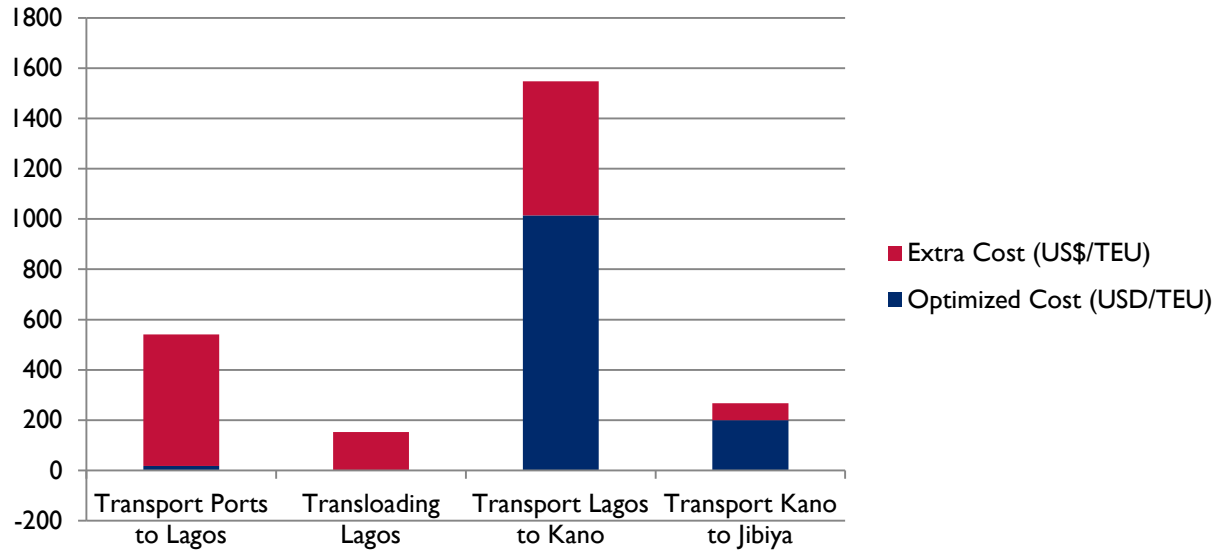
[33] If the shipper uses 12 loaders in order to reduce loading time, the cost of loading would be $306.

Table 31: Summary of Extra Cost Analysis

Component	Observed cost (U$S/TEU)	Observed cost (as % of total transport segment)	Extra cost (US$/TEU)	Extra cost (as % of total observed cost)
Transport Ports to Lagos Area	541	22%	524	97%
Unloading/Loading Lagos	153	6%	153	100%
Transport Lagos Area to Kano	1548	62%	534	35%
Transport Kano to Jibiya	268	11%	68	25%
Total	2510	100%	1279	51%

The greatest inefficiencies are evident in the Lagos area, particularly in transport costs for containers moving from Port to warehouses in Lagos, and during transshipment in Lagos, when the container is unstuffed and cargo is loaded into a bucket truck for transport to the north.

Figure 13: Extra Cost in the Transport Segment for a 20' Container



Full Corridor Summary

Table 32: Extra Costs for the Full Corridor

Extra cost: Full corridor	Observed cost (US$/TEU	Optimized cost (US$/TEU)	Extra cost (US$/TEU)
Total:	2510	1323	1279
Transport prices	2261	1323	938
Transloading Lagos	153	0	153
Informal fees	92	0	92
Cargo escort	96	0	96

Trucking costs for transporting a 20' container from the Ports to Jibiya, including the cost of a cargo escort, is $2,357, or $.11 per ton km. This is more than twice the cost observed in transport corridors in Western Europe, and $.04 more than the cost of transport in other West African corridors, such as

the Lome-Ouagadougou Corridor. It is $.05 more than the average transport cost on the Durban-Lusaka corridor, which we have chosen as our benchmark for an optimized cost scenario. Although the Durban-Lusaka corridor is longer than the LAKAJI Corridor, at 2,300 km, it was chosen as a benchmark since the trucking market in South Africa is open and competitive, and market efficiency is close to that of Western Europe. In comparison to highly regulated corridors elsewhere in West Africa, corridors in Southern Africa have been found to be the most advanced on the subcontinent in terms of competition and efficiency.[34]

Table 33: Global Comparison of Average Transport Prices

Average Transport Prices: Global Comparison	US cents per tkm
LAKAJI (Import)*	0.11
United States	0.04
Western Europe	0.05
Durban-Lusaka	0.06
Lome-Ouagadougou	0.07

**Includes all trucking fees and the cost of a cargo escort*
Source: Data for corridors other than LAKAJI: Teravaninthorn and Raballand, Transport Prices and Costs in Africa

Extra cost due to inefficiencies in the trucking market are identified as $938 per TEU, in comparison to the $.06 per tkm efficiency benchmark. Since containers would be transported directly to the north in this scenario, we consider the cost of transloading in Lagos extra cost. Informal fees and the cost of a cargo escort are also considered extra cost.

We have also subdivided extra costs by corridor segment, in order to present the relative inefficiencies from Port to Lagos, from Lagos to Kano, and from Kano to Jibiya.

Table 34: Extra Costs from Ports to Lagos Warehouse

Extra cost: Ports to Lagos	Observed cost (US$/TEU	Optimized cost (US$/TEU)	Extra cost (US$/TEU)
Total:	541	17	524
Transport prices	541	27	514
Informal fees	10	0	10

High transport prices within Lagos are majorly contributing to extra cost on this segment of the corridor.

If cargo is transported containerized from Port to Jibiya, and corridor efficiency were that of the Durban-Lusaka corridor, shippers would save $524 on this geographic section of the corridor. The extra cost for the Ports to Lagos segment of the corridor are calculated at 1.14 cents per tkm, which is equivalent to $514 for a 18 ton container transported a distance of 25 km. When also removing the $10 in informal fees paid to gate operators, the optimized cost for transporting an 18 ton container 25 km would be merely $17.

[34] Teravaninthorn and Raballand, "Transport Prices and Costs in Africa," The World Bank, 2009.

Table 35: Extra Costs for Transloading in Lagos

Extra cost: Transloading Lagos	Observed cost (US$/TEU	Optimized cost (US$/TEU)	Extra cost (US$/TEU)
Total	153	0	153
Transloading Lagos	153	0	153

The cost of loading and unloading in the Lagos area is considered an extra cost, due to the inefficiency associated with transshipping goods instead of transporting directly to the north containerized. If border clearance time is reduced to 48 hours and transport time is reduced to benchmark times identified in the time and delay section, there would be no demurrage charges incurred by the shipper, and therefore no necessity for transshipping in Lagos. Doing so would be a business decision by the shipper, rather than a decision driven by transport and logistics costs.

Table 36: Extra Costs from Lagos to Kano

Extra cost: Lagos to Kano	Observed cost (US$/TEU	Optimized cost (US$/TEU)	Extra cost (US$/TEU)
Total	1548	1014	534
Transport prices	1452	1064	388
Informal fees	50	0	50
Cost of Cargo Escort	96	0	96

The greatest contributor to extra cost on this segment of the corridor is trucking inefficiency. Again benchmarking against the cost of transport on the Durban corridor (.06 cents per tkm), the extra cost due to inefficiencies in the transport market is considered to be $388. Unofficial fees paid at checkpoints are considered extra costs, as is the cost of a cargo escort.

Table 37: Extra Transport Costs from Kano to Jibiya

Extra cost: Kano to Jibiya	Observed cost (US$/TEU	Optimized cost (US$/TEU)	Extra cost (US$/TEU)
Total	268	232	68
Transport prices	268	232	35
Informal fees	32	0	32

Informal costs have a greater relative contribution to extra costs on this segment of the corridor, as compared to other segments of the corridor. If a container were shipped straight through to Jibiya without any transloading, and efficiency levels were the same as the Durban-Lusaka corridor, shippers would save $35 on this segment of the corridor. With the additional $32 saved in informal fees, the overall extra cost for this segment is $68.

SCENARIO 2: USE OF RAIL

In this scenario, we identify cost savings to the shipper when using rail and the Kano ICD. If the rail lines are extended into the terminals, and trains begin to run more regularly allowing shippers to take advantage of rail, the cost to the shipper would be $1,315, saving the shipper $1,195 in extra cost.

Table 38: Extra Costs, Road vs. Rail

Extra cost: Road vs. rail	Observed cost (US$/TEU	Optimized cost (US$/TEU)	Extra cost (US$/TEU)
Total	2510	1315	1195
Transport prices	2261	1365	896
Unloading/loading	153	0	153
Informal fees	82	32	50
Cargo escort	96	0	96

The NRC said that the cost of rail transport from Lagos to Kano is currently $.045 per tkm (NGN 7.1 per tkm), plus cost of insurance at .25% consignment value. Keeping all other conditions constant on the corridor, including the vehicle transport cost from Kano to Jibiya and the informal fees along the way, using rail from Lagos to Kano would save the shipper $1195.[35] The cost savings would come from the reduced transport fee, in addition to savings incurred by not transshipping in Lagos, and avoiding informal fees on the long haul to Kano.

Shippers would also experience additional time savings. NRC estimates that it takes 30-48 hours on average, and 72 hours at maximum. Even the worst case scenario is a day shorter than current road travel time.

Additionally, intermodal competition would have an impact on trucking rates: the absence of rail services creates opportunities for the trucking industry to inflate prices. In their study on transport prices and costs on international corridors in Africa, Teravaninthorn and Raballand found that in countries where a competitive transport market exists, rail competition plays a role in setting transport prices. Likewise, actual or potential competition from road operators also limits the railways' pricing power. This is the case on the Mombasa-Nairobi and Mombasa-Kampala corridors, where rail prices are comparable to road prices.[36] We expect that the same phenomenon would occur in Nigeria if rail lines are concessioned to private operators, since Nigeria has a competitive trucking market (unlike most other West African countries, such as Ghana, which are heavily regulated).

[35] This figure does not include VAT which is extra. Transport cost to Kano calculated to be $972. Insurance for the import basket calculated to be $125. Cost to transport from Kano to Jibiya: $268.
[36] Teravaninthorn and Raballand, "Transport Prices and Costs in Africa," The World Bank, 2009.

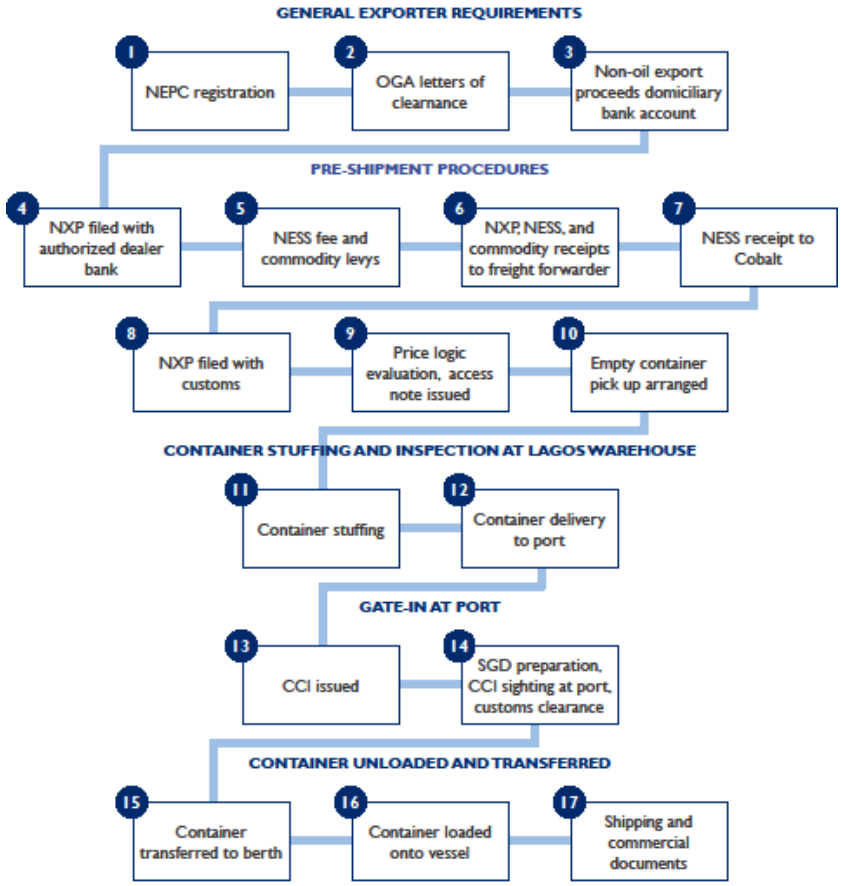
CHAPTER 6: EXPORTS: LOGISTICS PROCESSES, COSTS, AND DELAYS

This section analyzes the export process and all of the costs incurred, as they apply to the export basket previously established, from Jibiya through Kano, Lagos and to the Lagos port gates.

6.1. EXPORT PROCESS

The following is a flow chart of the process to export items from the point of departure in Jibiya to the Lagos gates.

Figure 14: Flow Chart of Export Processes



6.2. SEGMENT 1: TRANSPORT

6.2.1. OBSERVED TIME, DELAY AND INDIRECT COST OF DELAY

Observed time is the average time spent on each component of the export transport segment, assuming all things were working as usual. Time is measured from departure in Jibiya until delivery of cargo at the port gates. Delays are extra time within the observed time that is considered unnecessary or unjustified

based on a variety of factors for each component, including comparison to international benchmarks. The indirect cost of delay is the financial cost to the exporter due to delays in the transport process.

Table 39: Observed Time and Delay of Exports

Component	Observed time (hours)	Delay (hours)	Indirect Cost of Delay (USD)
Transport Jibiya to Kano	4	1	1
Transport Kano to Lagos	96	84	61
Transloading Lagos	72	0	0
Transport Lagos to Ports	48	46	34
Total	220	131	96

Transport times for southbound cargo on the LAKAJI Corridor are the same as transport times for northbound cargo, with the exception of time for transloading in Lagos.

JIBIYA TO KANO

Transport from Jibiya to Kano takes 4 hours in a 30 ton bucket truck, with 1 hour identified as delay due to time spent at checkpoints. We estimate the indirect financial cost of delay to the exporter as minimal ($1) as part of this segment of the export process.

KANO TO LAGOS

Transport from Kano to Lagos takes 96 hours (4 days) in a 30 ton bucket truck, with 84 hours (3.5 days) identified as delay, benchmarking against 12 hours as the optimized travel time.[37] The indirect cost of delay is calculated at $61.

TRANSLOADING AND CONSOLIDATION IN LAGOS

Most export shipments are consolidated at Lagos warehouses before being transported to the ports. Based on data collected, his transloading and consolidation segment takes an average of 72 hours (3 days) to complete. Steps included in this stage include unloading, inspection, reloading (a.k.a. stuffing), and inspection for issuance of a clean certificate, all steps required before goods can be transported to the port.

Some exporters exceed this three day average of time spent in this stage, if the export good or commodity they are exporting requires additional processing and/or drying procedures at this stage. However, for purposes of this study, these additional processing steps are commodity/product specific, and are not considered a logistical issue, so time involved in completing these steps is not included in this baseline study.

In a typical case of this segment of the export process, on day one, unloading takes place. Depending on the number of loaders employed, unloading and re-loading goods (stuffing) can take between 3 hours and a day and a half. Based on the average case using six people, we estimate that it takes 6 hours to

[37] This is the same benchmark used for this segment of the corridor for imports. If truckers were able to travel the highway speed limit of 120km per hour, it would only take 8 hours to drive from Lagos to Kano. Building in an extra 4 hours, the optimized journey should take no more than 12 hours

unload one truck. One day is estimated for the time required to complete pre-shipment export procedures. The third day is spent stuffing the container, completing quality inspection, and loading.

Regarding quality inspection, pursuant to the Nigerian Export Supervision Scheme (NESS), representatives from Cobalt International Services Limited, a privately contracted pre-shipment inspection agent contracted in October 2004 for the inspection of all non-oil exports, must be present for the stuffing and sealing of the container. NESS requires the inspection of all products intended for export to ensure that the quality of products meets the standards of quality required by the international market. In order to minimize delays and avoid multiple examinations, representatives from other organizations, including NCS, SON, NAFDAC, and NDLEA are encouraged to also attend the inspection and stuffing. In practice, shippers said that sometimes these organizations are not present.

Once the container has left this stage and is at the port, the shipper will wait for Cobalt to issue the Clean Certificate of Inspection (CCI), which certifies that quality, price, and quantity of the goods being shipped are the same as what is contained in the contract document. The CCI is generally issued within 3 days of the original inspection, which takes place during the stage described above.

No delays emerged from interviews when conducting research for this stage of the export process, which is why none are reported in the above table.

LAGOS TO PORTS

Based on data collected, transport from the point of container pick-up at Lagos warehouses to drop off at the port takes an average of 2 days (48 hours). Delays are longer entering the port than exiting the port, which shippers and freight forwarders attribute to the restrictions on truck movements during the daytime. In early 2012, due to heavy congestion, the Lagos state governor placed a ban on trucks entering the Lagos metropolitan area from 6 am to 9 pm. This has led to a practice where trucks queue to enter the port, all at the same time.

The delay for this segment of the export process is estimated at 46 hours (1.92 days), which is calculated by subtracting the 2 hours of optimal time to drive a distance of 25 km (the same benchmark utilized for imports on this segment) from the observed time of 48 hours it takes to complete this segment of the export process. The indirect cost of this delay is calculated at $34.

6.2.2. DIRECT COST

Direct costs are average fees actually paid for export activities carried out, assuming all things are working as usual. Direct costs include all formal (receipted) and informal (un-receipted) costs.

Based on data collected, exporting goods from Jibiya to the Lagos Ports has a calculated direct cost to the shipper of $1,570 per TEU. This direct cost of $1,570 includes the $79 of informal fees per TEU that are paid by truckers in informal fees. The direct cost per ton kilometer for the entire Corridor is calculated at $.08 (this represents the formal cost divided by tonnage, divided by total kilometers).

Table 40: Direct cost to the shipper in the transport segment of the export logistics chain

Component	Formal cost (USD/TEU)	Informal cost (US$/TEU)	Direct cost to shipper (US$/TEU)	Cost per ton kilometer
Transport Jibiya to Kano	253	31	253	0.07
Transport Kano to Lagos	776	48	776	0.045
Transloading Lagos	318	0	318	N/A
Transport Lagos to Ports	541	10	541	1.20
Total	1570	79	2414	0.08

JIBIYA TO KANO

The transport cost per 17 ton TEU from Jibiya to Kano is $253. This cost is based on a trucking rate of $446 for a 30 ton truck (see Table 42 below), which was found to be the same rate for a truck going in the opposite direction from Kano to Jibiya. Truckers pay an estimated $31 per TEU in informal fees at checkpoints along the way. The cost per tkm for this specific segment of the Corridor is $.07.

While cost per tkm is the most precise benchmark for transport prices, it is also instructive to examine vehicle cost per km, since overloading practices vary in countries with minimal trucking regulation, such as Nigeria. The direct cost per vehicle km for this segment of the corridor is currently $2.07, which is over three times the cost observed in 2008 (Table 41) This cost increase may be due to increased insecurity in the north.

Table 41: Trucking Rates and Cost per Km in 2008 and 2013

	2013		2008
Trucking rates	Vehicle cost (US$)	Cost per km (US$)	Cost per km (US$)
Jibiya to Kano	445.86	2.07	0.59
Transport Kano to Lagos	1210.0	1.23	1.08
Transport Lagos to Port	541	21.64	22.14

Source: 2013 data obtained in interviews with freight forwarders, truckers, and shippers. 2008 data is from USAID Markets LAKAJI Corridor Performance Analysis[38]

KANO TO LAGOS

As seen in Table 40, the transport cost per TEU for the long haul from Kano to Lagos is $776, which is about half the cost for an imported container on the same segment of the corridor. This figure includes the vehicle cost and the cost of a cargo escort, appointed to ensure cargo safety. Informal fees in this segment of the corridor are equivalent to $48 per TEU, based on $84 paid per 30 ton truck. The cost per tkm is $.045, which is $.04 less than the cost of transporting imports the same distance. The reduced cost of transport for southbound trucks is attributed to the fact that these trucks are able to find loads in Lagos to backhaul to Kano, while northbound trucks generally return to Lagos empty.

The vehicle cost per km in 2013 is slightly more than the cost observed in 2008, although still quite close, with a difference of only $.15 per km.

[38] The USAID MARKETS LAKAJI Corridor rates are cost per TEU km. Since the study assumed a 20' container weighs 30 tons, the costs per TEU are comparable to the costs per vehicle in this study.

TRANSLOADING LAGOS

Shippers and freight forwarders estimated the cost of transloading in Lagos to be $318. This amount includes the cost of labor for unloading the cargo from the first truck for storage at the warehouse, and the cost of labor for stuffing the cargo into a container for final delivery to the port. Although the NESS quality inspection occurs at this stage, the associated fee is included in the port segment of the analysis since it is an official control procedure.

LAGOS TO PORT

To transport a 20' container from the Lagos area to the port is $541 per TEU, with $10 in informal fees paid at the port gate. The cost per TEU and vehicle cost are the same, since the shipment is transported containerized on a flat platform truck. The cost per km observed here is slightly less than the cost per km observed in 2008 for the same type of truck.

6.2.3. EXTRA COST

SCENARIO 1: IMPROVED ROAD TRANSPORT

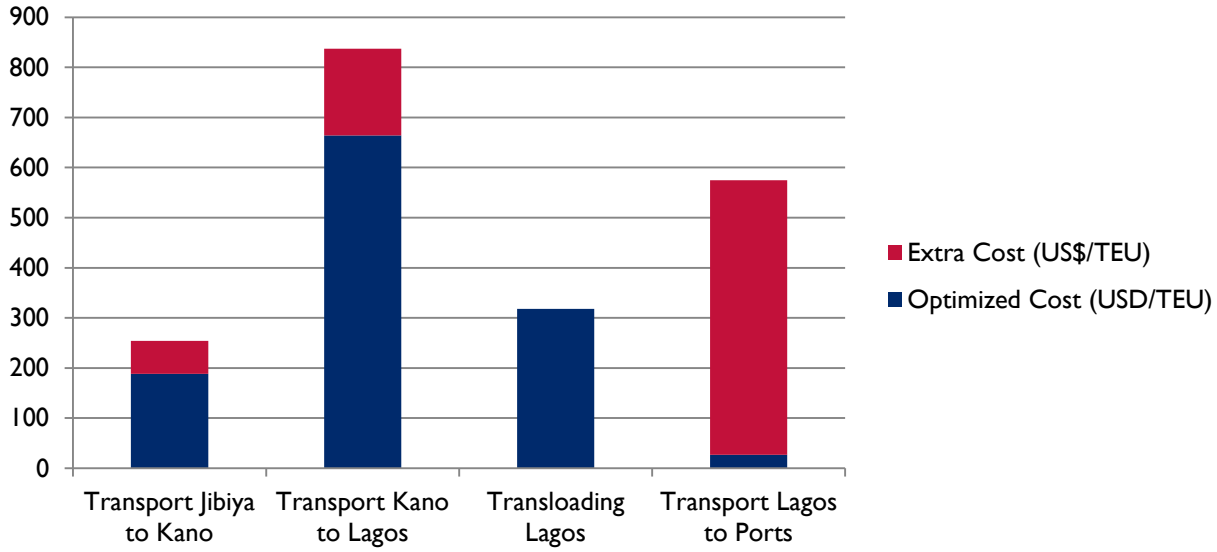
In this scenario we consider the cost savings to the exporter if extra costs on transport segment were eliminated. Extra costs in the transport segment for export containers include the indirect costs of delay and direct costs identified as extra cost. Extra costs of $787 represent 41% of the total cost of the transport segment of the export logistics chain.

Table 42: Extra Costs of Transport for Export Containers

Component	Observed cost (U$S/TEU)	Observed cost (as % of total transport segment)	Extra cost (US$/TEU)	Extra cost (as % of total observed cost)
Transport Jibiya to Kano	254	13%	66	26%
Transport Kano to Lagos	837	42%	173	21%
Transloading Lagos	318	16%	0	0%
Transport Lagos to Ports	575	29%	548	95%
Total	1984	100%	787	40%

The most significant inefficiencies in the transport segment are observed between Lagos and the ports. While this segment encompasses 29% of the total cost on the corridor, approximately 95% of this cost component is identified as extra cost. The calculation of extra costs is elaborated below.

Figure 15: Extra Cost in the Transport Segment for a 20' Container



Jibiya to Kano

Table 43: Extra Costs of Transport from Jibiya to Kano

Extra cost: Jibiya to Kano	Observed cost (US$/TEU)	Optimized cost (US$/TEU)	Extra cost (US$/TEU)
Total	254	188	66
Indirect cost of delay	1	0	1
Transport prices	253	219	34
Informal fees	31	0	31

If transport efficiency were improved on this segment of the corridor, one hour of delay and the associated $1 per TEU in indirect cost (see table above) would be eliminated.

If we compare the cost per tkm for this segment of the corridor (.07) to an international benchmark, such as the cost per tkm on the Durban-Lusaka corridor (.06), we could assume potential savings to the shipper in an optimized scenario, and then estimate the extra cost per TEU as $66. These extra costs may not be caused solely by inefficiencies in the transport and logistics system: insecurity may be driving up the cost of transport on this segment of the LAKAJI corridor.

Truckers report paying an average of $31 per TEU at checkpoints on this segment of the corridor, which are passed onto the shipper in trucking rates. The high number of security checkpoints on this segment presents more opportunities for collection of un-receipted fees.

Kano to Lagos

Table 44: Extra Costs of transport from Kano to Lagos

Extra cost: Kano to Lagos	Observed cost (US$/TEU)	Optimized cost (US$/TEU)	Extra cost (US$/TEU)
Total	837	664	173
Indirect cost of delay	61	0	61
Informal fees	48	0	48
Cost of Cargo Escort	64	0	64

The high indirect cost of delay for cargo traveling from Kano to Lagos area is essentially an extra cost to the shipper.

We do not include transport prices as an extra cost for this segment of the corridor, since transport costs for southbound cargo are quite competitive in comparison to international benchmarks. The $.046 cost per tkm is not only lower than the cost experienced on the Durban-Lusaka Corridor, it is slightly lower than the cost of transport in Western Europe ($.05). The cost for import cargo traveling the same distance from Lagos to Kano costs around twice this amount ($.09).This is a clear indication of the benefits to shippers when using trucks that backhaul.

However, a low cost per tkm is not necessarily indicative of an optimally functioning transport market. Many trucks on the road are in poor condition, and should not be carrying 30 ton loads. Overloading beyond truck capacity makes the corridor appear to have higher freight-carrying performance despite slower speeds, and higher road provision costs. Clearly, overloading has other negative consequences which we were unable fully monetize in this study: one major shipper reported that 20% of product losses were attributed breakdowns and missing trucks.

As is seen in table 45, an average of $48 per TEU is paid in informal fees at checkpoints, and $64 per TEU goes toward the cost of a cargo escort. In this study, these are considered inefficiencies which increase the cost of conducting trade in Nigeria.

Transloading Lagos

Table 45: Extra Costs Transloading Lagos

Extra cost: Transloading Lagos	Observed cost (US$/TEU)	Optimized cost (US$/TEU)	Extra cost (US$/TEU)
Total	318	318	0

There were no extra costs reported at the loading stage, however additional research could be undertaken to identify best practices in unstuffing and truck loading in order to determine where shippers can minimize costs.

Lagos to Ports

Table 46: Extra Costs from Lagos to Ports

Extra cost: Lagos to Ports	Observed cost (US$/TEU)	Optimized cost (US$/TEU)	Extra cost (US$/TEU)
Total	575	27	548
Indirect cost of delay	34	0	34
Transport prices	541	27	514
Informal fees	10	0	10

As per the above, the financial cost of delay to the exporter is calculated to be $34.

Using the same benchmark from the import section on transport efficiency, the cost per tkm in Durban (.06), transport prices include extra costs of $514. This should be understood as a theoretical cost of improved transport: actual transport costs for the short-haul in the Lagos area would likely be greater than the optimized cost on the Durban long-haul. Nonetheless, the analysis highlights the relative inefficiencies in Lagos versus the rest of the corridor.

Informal fees paid by the trucker at the port gate ($10) also represent extra costs which ultimately increase transport costs to the shipper.

SCENARIO 2: RAIL AND KANO ICD

We estimate that shippers would save $816 on this segment of the export logistics chain if they were able to complete export procedures in the north (including pre-shipment inspection), and ship their cargo containerized by rail through the Kano ICD to Lagos Ports. In other words, instead of paying the current estimated $1,957 for the entire trip, they would pay $1,162, assuming the journey from Jibiya to Kano stays the same and the associated indirect fees and inefficiencies untouched.

In this scenario, the observed cost is the current cost that exporters experience, the optimized cost is the cost of rail transport, and the extra cost is the difference between the two.

Jibiya to Kano

Table 47: Extra Costs from Jibiya to Kano

Extra cost: Jibiya to Kano	Observed cost (US$/TEU)	Optimized cost (US$/TEU)	Extra cost (US$/TEU)
Total	254	254	0
Indirect cost of delay	1	1	0
Transport prices	253	253	0
informal fees	31	31	0

For the purposes of demonstrating the cost savings of rail transport alone, we have kept the costs associated with the journey from Jibiya to Kano constant. Reducing inefficiencies on this segment would result in additional cost savings to the shipper (as identified above in scenario 1: improved road transport).

Kano to Ports

Table 48: Extra Costs from Kano to Ports

Extra cost: Kano to ports	Observed cost (US$/TEU)	Optimized cost (US$/TEU)	Extra cost (US$/TEU)
Total	1730	913	816
Indirect cost of delay	95	25	70
Transport prices	1317	1000	317
Informal fees	58	0	48
Cost of Cargo Escort	64	0	64
Transloading Lagos	318	0	318

It takes a maximum of 48 hours for cargo to travel by rail from Kano to Lagos Ports. If we use 14 hours as the benchmark for optimized time for road travel between Kano and Lagos Ports (12 hours from Kano to Lagos and 2 hours from Lagos to Lagos Ports), the delay associated with rail transport (48-12-2 hours) is 34 hours. The indirect cost of delay for the rail (the optimized scenario) is therefore calculated at $25.

Observed transport prices include the cost of transport from Kano to Lagos and Lagos to Ports. With the rail cost of $.05 per tkm, there are no savings to the shipper between Kano and the Lagos Area. The cost of rail is higher when you take into account added insurance costs. However, large savings are incurred between Lagos and the Ports. On this segment, using rail saves the shipper $315. This indicates that the rail extension into the port terminals is a necessary condition for transport savings – it does not make business sense for a shipper to use rail unless they can eliminate the need for additional transport in Lagos.

Other cost advantages of the rail scenario are the savings associated with not having to pay informal fees at checkpoints, not having to use a cargo escort, and not having to transload cargo in Lagos.

6.3. SEGMENT 2: PORT

Since average time and cost are approximately the same for exports leaving Apapa and Tin Can Island ports, and since export volumes are significantly lower than import volumes, we have included one time and cost scenario for exports leaving both Apapa and Tin Can Island. Where time and cost are different, they are averaged to create a single value for both ports.

6.3.1. OBSERVED TIME, DELAY, AND INDIRECT COST OF DELAY

Observed time is the average time spent on each component of the port segment for exports, assuming all things were working as usual. Time is measured from the transfer of the container from truck to yard, through the vessels departure at the port. Delays are extra time within the observed time that is considered unnecessary or unjustified based on a variety of factors, including comparison to international benchmarks. The indirect cost of delay is the financial cost to the exporter due to delays in the port process.

Table 49: Summary of Observed Time, Delay and Indirect Costs to Shippers

Component	Observed time (hours)	Delay (hours)	Indirect Cost to Shipper (US$/TEU)
Border clearance	48	44.5	32
Forwarding			
Yard handling			
Port yard operations total	48	44.5	32
Loading at berth	30	9.5	7
Channel operations	3	0	0
Anchorage and berthing total	33	9.5	7
Total:	81	54	39

Border Clearance, Forwarding and Yard Handling

Time for border clearance, forwarding and yard handling at the port is measured together, since these processes occur simultaneously.

Border clearance procedures at the port take on average two days for a proactive shipper who completes all processes as early as possible (we observed a range between one and three days). The majority of export procedures are completed before the shipment arrives at port, including registration with the Nigerian Export Promotion Council (NEPC), completing the Nigerian Export Proceeds Form (Form NXP), and undergoing quality certification inspection. These processes are further elaborated in Annex 4. After goods are moved to the port of shipment, the goods will undergo NCS documentation and examination. Documentation is carried out at the customs processing units (CPUs) at the port, where the Single Goods Declaration form is completed by the freight forwarder and endorsed by customs. At the same time, the shipper will wait for the CCI to be issued by Cobalt.

The time for clearance processes for exports is faster than the same for imports. Nonetheless, there is room for improvement: benchmarking against the observed time for export processes at the Port of Tema, where it took 3.5 hours for all border clearance processes, the delay is considered to be 44.5 hours.[39] The indirect financial cost to the shipper for border clearance therefore, is calculated at $32.

Yard handling time is included only for time outside of the shippers control (i.e. border clearance time). However, it is interesting to note that according to APM Terminal, the average storage time for exports is 9 days.[40] Export cargo begins incurring storage charges after day 7 of NGN 750 per day, so the typical shipper would incur 2 days of storage fees, totaling around $10. Storage time of 9 days is beyond what is necessary for shippers to complete export processes, so one could potentially assume that shippers are considering the 7 free days of storage as free warehousing. As export volumes are limited, terminal operators do not report being concerned with this practice.

Loading at Berth

The average time at berth for Apapa and Tin Can Island is 60 hours. Loading time, which represents half of total berth time, is therefore calculated as 30 hours. Using the average 20.5 hour loading time at

[39] USAID "West Africa Transport Logistics Analysis Using FastPath: Tema-Ouagadougou Corridor (January 2010).
[40] We were not able to obtain data for export storage time for Tin Can Island terminals.

Tema as a benchmark, delay in loading at berth is identified as 9.5 hours, and the financial cost to the exporter is estimated at $7.[41]

Channel Operations

Interviews with Tin Can Island terminals found that the average waiting time for the ship to depart after cargo is loaded is just 3 hours. APM declined to provide information on this indicator, so we have based our figure on Tin Can Island data.

We consider the three hours of observed waiting time as minimal, so we have not included the cost of delay for this segment.

DIRECT COST TO EXPORT

Direct costs in the port segment of the export logistics chain are the average fees actually paid for component activities, assuming that all things are working as usual. Direct costs include both formal (receipted) and informal (un-receipted) costs.

Table 50: Summary of Direct Costs to Export

Component	Formal cost (USD/TEU)	Informal cost (US$/TEU)	Direct cost to shipper (US$/TEU)
Border clearance	137	50	187
Forwarding	637	Included above	587
Yard handling	153	0	153
Port yard operations total	927	50	927
Loading at berth	124	0	124
Channel operations	6	0	6
Anchorage and berthing total	130	0	130
Total:	1057	50	1057

Border clearance

Costs in the border clearance segment include the NESS fee of .5% FOB value of the export container, and informal facilitation fees paid to customs and other government agencies by freight forwarders.

Results of interviews demonstrate that informal fees in the export process are not only paid to customs agents; they are paid to representatives of a variety of agencies depending on the nature of the goods and the related organization which oversees inspection for those goods (examples of other recipients of informal fees from interviews included NAFDAC and SON). Some shippers expressed that informal fees paid as part of the export process were actually lower than informal fees paid for the import process, since there are fewer steps and inspections involved. Nonetheless, the average informal cost for exporting was calculated at $50 per container, which is the same observed on the import side.

[41] USAID "West Africa Transport Logistics Analysis Using FastPath: Tema-Ouagadougou Corridor (January 2010).

Table 51: Average Informal Cost for Exporting a Container

Border Clearance, incl:	187
NESS Inspection fee	137
Informal fees	50

Forwarding

Freight forwarders charge an average of $637 for clearing exports, which is lower than fees paid for imports since imports have an added charge for customs processes which occur before cargo arrives at vessel, including processing the Form M and the risk assessment report (RAR). In the table above we have deducted the informal fees paid by freight forwarders to customs from the observed freight forwarding cost, in order to prevent double counting.

Table 52: Cost of Forwarding

Forwarding, incl:	587
Freight forwarding (less informal fees)	587

Yard Handling

The cost for yard handling and storage is calculated at $153, with all associated fees are paid to the shipping line. These include an export delivery charge, an outside stuffing fee, and an administrative charge for export documentation. Shipping lines charge a higher fee for inside stuffing, which deters shippers from using this service.[42] We have therefore included outside stuffing as the typical case.

Table 53: Cost of Yard Handling and Storage for Exports

Yard handling and storage, incl:	153
Export delivery charge	25
Outside stuffing fee	96
Export doc fee	32

Loading at Berth

There are no direct charges invoiced to the shipper for loading at berth or for channel operations. However, we have included charges that the shipping line must pay to terminal operators and to NPA, since these charges are passed onto the shipper in sea freight rates. The average sea freight for a 20' container of agricultural products weighing 17 tons from Lagos to Newark is: $2584.[43] Within this amount is $124 that goes to costs for loading at berth. We include a detailed explanation of how we calculated these charges in Annex 5.

Berth rent is paid by the shipping line to NPA, and takes into consideration the length of a ship and the days the vessel is at berth. Based on an average ship length of 209 m and an average stay of 58 hours at

[42] Inside stuffing is loading the container inside of the terminal yard, and outside stuffing is loading the container outside of the terminal yard. Shippers pay an inside stuffing fee to be able to stuff their container inside the yard, instead of picking up the container at the yard, transporting it a warehouse for loading, and then transporting the loaded container back to the yard. Maersk charges US$268 (NGN 42000) for inside stuffing.

[43] Rate quoted by Maersk Line

Apapa Port, the dues per vessel are $1,003, or $0.40 per TEU. We assume that this cost is shared between exporters and importers. The cost to the exporter, therefore, is $.20 per TEU.

Cargo dues are also referred to as Yard Handling or Stevedoring fees. These fees are paid by the shipping line to the terminal operators for handling cargo at berth, and a standard fee of $70 per 20' container is applied.

Shipping lines also pay the following charges for the use of port infrastructure: Harbor dues, an environmental protection levy, and a MOWCA levy. Together, these fees add $124 to the cost paid by the shipping line, and thus passed onto the exporter.

Table 54: Costs to Exporter of Loading at Berth

Loading at berth (component of sea freight), incl:	124
Berth rent	0.2
Cargo dues	70
Harbour dues	47
Enviromental Protection Levy	3.6
MOWCA	3

Channel Operations

Again, there are no direct charges invoiced to the shipper for channel operations. However, we have included Port Dues as a cost paid by the shipping line, which is passed onto the exporter in sea freight.

Port dues passed onto the exporter are estimated to be $6 per TEU, and are paid per call of the vessel. Charges vary depending on whether the vessel is a foreign flag carrier, and whether it is the vessel's first call in Nigeria or in Lagos. Some vessels shift between Lagos and Apapa (this was observed by Maersk vessels, for instance), but since the majority appear to call once in Lagos, we assume for this study that it is the vessel's first and only call.

Table 55: Costs of Channel Operations

Channel Operations (component of sea freight), incl:	6
Port dues	6

EXTRA COSTS FOR EXPORT

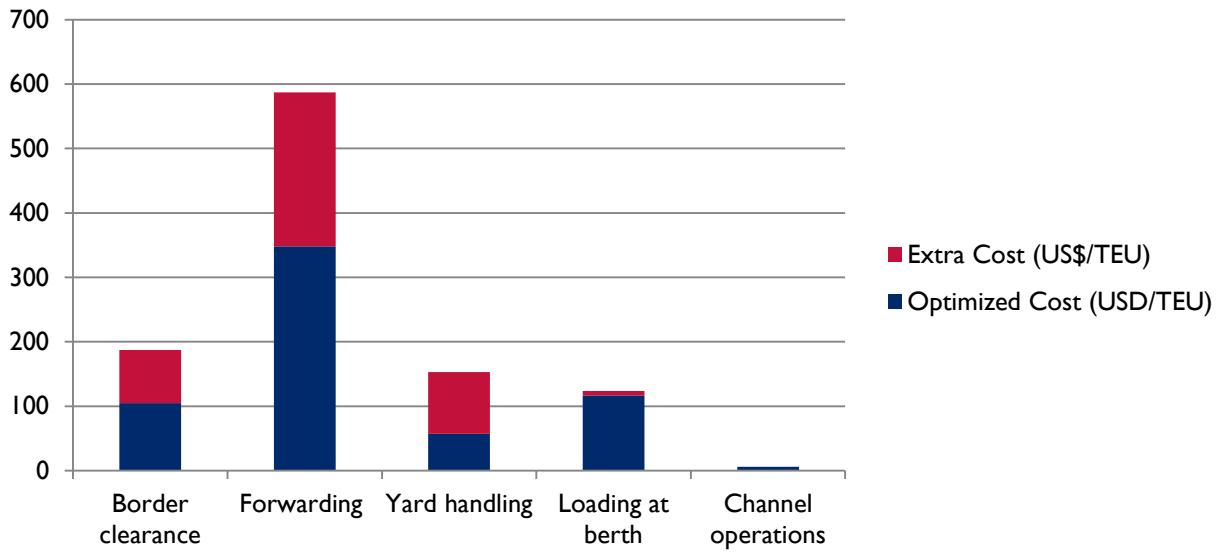
Extra costs in the port segment for export containers include the indirect costs of delay and direct costs identified as extra cost.

Table 56: Summary of Observed Costs, Extra Costs and Extra Costs as a % of Observed Costs

Component	Observed cost (U$S/TEU)	Observed cost (% total port costs)	Extra cost (US$/TEU)	Extra cost (% observed cost)
Border clearance	187	18%	82	44%
Forwarding	587	56%	239	41%
Yard handling	153	14%	96	63%
Loading at berth	124	12%	7	6%
Channel operations	6	1%	0	0%
TOTAL:	1057	100%	424	40%

Inefficiencies and extra costs are observed during border clearance due to informal fees and delays, during forwarding due to high freight forwarding rates, during yard handling due to administrative charges without service rendered, and during loading due to high harbor dues paid by the shipping lines and then passed onto shippers in sea freight.

Figure 16: Extra Cost in the Port Segment for a 20' Container



Border Clearance

Table 57: Extra Costs of Border Clearance

Extra cost: Border clearance	Observed cost (US$/TEU)	Optimized cost (US$/TEU)	Extra cost (US$/TEU)
Total	187	105	82
Informal customs fee	50	0	50
Indirect cost of delay	32	0	32

Extra costs during border clearance include informal fees paid to customs and other government agencies, and the indirect cost of 44.5 hours of delay. If Lagos ports were able to reduce border clearance time to the time experienced at Tema they would save $32 in indirect financial cost.

Forwarding

Table 58: Extra Costs of Forwarding

Extrac: Forwarding	Observed cost (US$/TEU)	Optimized cost (US$/TEU)	Extra cost (US$/TEU)
Total	587	348	239
Forwarding	587	348	239

As was observed for imports, freight forwarding fees for exports are higher in Nigeria than in neighboring West African countries. The USAID West Africa Trade Hub's 2010 report, "Transport and Logistics Costs on the Tema-Ouagadougou Corridor" found that freight forwarder fees in Ghana (not including informal fees) averaged $347.78 per TEU for the export of a 16 ton container of cashew nuts.

Although further research is needed to identify the drivers of higher freight forwarding rates in Nigeria, it is interesting to note that shippers in Nigeria pay an extra $239 on average for forwarding services.

Yard Handling

Table 59: Extra Costs of Yard Handling

Extra cost: Yard handling	Observed cost (US$/TEU)	Optimized cost (US$/TEU)	Extra cost (US$/TEU)
Total	153	57	96
Outside stuffing fee	96	0	96

The outside stuffing fee charged by shipping lines is considered an extra cost, since it is an administrative charge with no service rendered. If a shipper is stuffing their container at their warehouse outside the port, they will still pay for the labor for stuffing in addition to the outside stuffing fee charged by the shipping line.

Loading at Berth

Table 60: Extra Costs of Loading at Berth

Extra cost: Loading at berth	Observed cost (US$/TEU)	Optimized cost (US$/TEU)	Extra cost (US$/TEU)
Total	124	117	7
Indirect cost of delay	7	0	7

Extra costs during loading only the indirect cost of delay.

Other yard handling costs appear to be minimal and appropriate when compared to regional benchmarks, and are therefore not included as extra costs. Harbour dues in Nigeria are close to those charged in Ghana, for instance.

Berth rent is not a substantial cost to the shipper, and is therefore not considered in this analysis as an extra cost. Improving time at berth to the time experienced at Tema (41 hours) would only save the shipper $.10. Incidentally, berth rent rates are also less expensive in Nigeria than in Tema.

Stevedoring rates of $70 per 20' container and 100' per 40' container are competitive with regional rates. In Ghana the cost per 20' container is $82.69 and $156.19 for a 40' container.[44]

Channel Operations

Table 61: Extra Costs of Channel Operations

Extra cost: Channel operations	Observed cost (US$/TEU)	Optimized cost (US$/TEU)	Extra cost (US$/TEU)
Total	6	6	0

There are no extra costs identified during channel operations for exports. Terminal operators have significantly reduced vessel waiting time at anchor, which led to the removal of the port surcharge for delays upon arrival to ships in channel. Subsequently, costs to the shipper have fallen in the last few years.

[44] West Africa Trade Hub, Ghana Port Authority Port Tariffs 2011.

CHAPTER 7: NEXT STEPS

The attached Baseline Assessment Report provides an updated set of indicators to assist the Nigerian public and private sectors in measuring corridor performance. This data will be discussed and validated at a workshop among corridor stakeholders that will take place in Nigeria in June 2013. The stakeholder workshop will provide an opportunity to gather the members of Nigeria's Corridor Management Group, an initiative that began in 2010 to improve corridor performance, to discuss where Nigeria is versus international benchmarks, and agree on steps to take to improve Nigeria's LAKAJI Corridor performance indicators.

ANNEX 1: INTERVIEWS CONDUCTED IN PERSON

Location	Firm/Institution	Type of Stakeholder
Abuja	Jabi Transport Park	Truckers/Unions
Abuja	Dei Dei Transport Park	Truckers/Unions
Abuja	CTN Express	Trucking Company
Ilorin	Oriana Transport Park	Truckers
Ogbomosho	Truckers	Truckers
Ibadan	Oyo State Shippers Assocation	Association
Ibadan	Ibadan ICD	Site Visit
Lagos	Olam	Exporter
Lagos	NCS	Customs
Lagos	Nigerian Flour Mills	Importer/Exporter
Lagos	Vintage Concept Ltd	Freight Forwarder
Lagos	K Marine	Freight Forwarder
Lagos	Maersk line	Shipping line
Lagos	Mid Ocean company Limited	Freight forwarder
Lagos	A.C.E.T. Nigeria Ltd	Cashew exporter
Lagos	First Diamond Shipping Agency	Shipper
Lagos	XPT Logistics	Exporter/Freight Forwarder
Lagos	DAMCO/Lillypond ICD	Logistics arm of Maersk
Lagos	Nigerian Shippers Council	Association
Lagos	Fortune Global Shipping	Freight Forwarder
Lagos	Jon Tudy	Exporter
Lagos	Peak River Logistics	Freight Forwarder
Lagos	Dizengoff	Importer
Lagos	Dangote	Exporter
Lagos	Grimaldi/PTML	Shipping line
Lagos	Cargo Land	Freight Forwarder
Lagos	NPA	Ports Manager, RTD, Tin Can
Lagos	APMT	Terminal Operator
Lagos	Baxwells Express Solution Ltd	Freight Forwarders
Lagos	Swift Freight	Freight Forwarders
Abuja	Ministry of Trade and Investment	Institution
Lagos	5 Star Logistics	Terminal Operators
Lagos	Tincan Island Container Terminal	Terminal Operators
Lagos	Port & Cargo Handling Services	Terminal Operators
Lagos	International Network of Transit and Transport	Logistics
Lagos	Multimix	Global Logistics & Supply Chain
Lagos	Nexportrade Houses	Export
Lagos	Nigerian Railway Corporation	Transport
Lagos	Nigerian Shippers' Council	Transport
Lagos	Manufacturer's Association of Nigeria	Trade Group

Lagos	Ketu/Mile 12 Tomato Market	Traders/Transporters
Lagos	Daleko Rice Market Mushin	Traders/Transporters
Lagos	Marina Aggregation Park	Traders/Transporters
Lagos	Ebute Ero Aggregation Park	Traders/Transporters
Lagos	Iddo Terminal Truck Park	Traders/Transporters
Lagos	ENL Consortium Limited	Terminal Operators
Lagos	Swift Cargo	Freight Forwarders
Lagos	Wadoye CK Cargo	Freight Forwarders
Kaduna	Mando Heavy Truck Park	Transport
Kaduna	Mando Heavy Truck Park	Transport
Kaduna	Kaduna Railway Station	Transport
Kaduna	Inland Containers (Nigeria) Limited	Terminal Operator
Kaduna	Kaduna Railway Fruit Market	Transport
Kaduna	Kaduna Railway Fruit Market	Transport
Kaduna	Antemma Venture limited	
Kaduna	Janccre Investment Limited	
Kaduna	Zichonix Logistics Nigeria Limited (Agro-logistics)	Logistics
Kano	Inland Containers (Nigeria) Limited	Terminal Operators
Kano	S.G.International	
Kano	Dawanau Market	Traders/Transporters
Kano	Dawanau Market	Traders/Transporters
Kano	E.T.C. Agro	
Kastina	Office of the senior Special Asst	Government
Kastina	Service to Humanity	
Kastina	Youth Craft Village	
Kastina	Nigeria Custom Service	Customs/Government
Kastina	Cotecna	
Kastina	Usman Isyaku Ventures Limited	
Niger	Lambata Truck Park	Transport
Niger	Bida Tuck Park	Transport
Niger	Bida Tuck Park	Transport
Kwara	Ilorin Truck Park	Transport
Niger	Mokwa Truck Park	Transport
Niger	Mokwa Truck Park	Transport
Niger	Mokwa Truck Park	Transport

ANNEX 2: EXPORT AND IMPORT BASKET METHODOLOGY

Choice of studied commodities

The assessment team selected three products to be included in baskets of goods for import and export, in order to establish a proxy for the average cost and time to ship a 20' container along the corridor. Goods were chosen by relative contribution to overall trade, volume passing through Lagos Ports, relevance to NEXTT value chains (agricultural products for export), and mode of handling.[1]

Import Basket

Commodity	Weight (tons) (MT/TEU)	Unit value (CIF/MT)	TEU value (CIF/TEU)	Trade value (USD)
Rice (rice milled equivalent)	15	3,744	56,161.66	1,652,948,082
Paper	24	1,137	27,296.87	287,072,905
Powdered milk	16	10,491	167,855.91	1,582,252,968

Source: UNCOMTRADE, FAO Stat, Interviews with Traders, Trade Map

In 2011, Rice, Paper and Powdered Milk account for 6% of overall trade in Nigeria.[2] Nigeria imported 441,479 tons of rice in 2011, and according to statistics provided by the Nigerian Ports Authority (NPA), 60% of imported rice via Nigerian Ports passed through Lagos Ports. Bagged rice accounted for 7% of all non-bulk imports at Lagos Ports. Nigeria imported 252,401 tons of paper in 2011, 98% of which passed through Lagos Ports, and which accounted for 3% of total non-bulk imports at Apapa and Tin Can.[3] In 2011, powdered milk was the top agricultural import per unit value, with an estimated volume of 150,821 tons.

Trade Map was consulted to obtain data on FOB and MT values of these imports. Weighted averages of these products were used to calculate the CIF/TEU ratio.

Based on the above containerized weights and CIF values per TEU, the import basket is calculated to weigh 18 tons with a CIF/TEU of 76,058.70.

Export Basket

Commodity	Weight (tons)	Unit value (FOB/MT)	TEU value (FOB/TEU)	Trade value (USD)
Cashews (raw)	16 MT	800	12,800	4,804,000
Sesame	19 MT	1,276	24,244	139,000,000
Cocoa	15 MT	3,000	45,000	659,886,000

Source: UNCOMTRADE, FAO Stat, NCS, Interviews with Traders

[1] The top imports in Nigeria are not containerized: in 2012 boilers, machinery and appliances accounted for 23% of total imports and vehicles and aircrafts accounted for 20%.
[2] UN Comtrade. Total FOB imported value for 2011: $47,265,753,572
[3] NPA

Cashews, sesame and cocoa are export sectors of interest for the Nigerian government, and have been supported by USAID via the MARKETS I and II projects. Cocoa is Nigeria's second biggest foreign exchange earner after crude oil, producing an estimated 400,000 MT per year, and exporting 96% of its production. Nigeria is the region's third largest cocoa producer, following Cote d'Ivoire and Ghana. Nigeria exports 50% of West Africa's sesame exports, or an estimated amount of 140,800 MT annually. Nigeria produces cashews in most of its Southern states, producing an estimated 125,000 MT of raw cashews per year, exporting the large majority of this (FAOSTAT, 2012). An estimated 90,751 tons of cashews and 265,721 cocoa beans are exported annually through Apapa port. As per the Nigerian Port Authority, over 95% of trade in these products passed through Lagos Ports.

Trade Map was consulted to obtain data on FOB and MT values of these exports. Weighted averages of these commodities were used to calculate the FOB/TEU ratio.

The export basket is calculated to weigh 17 tons with a FOB/TEU of 26,808.72.

Scope of the Analysis

The time and cost to import and export goods is divided into two sub-segments for measurement: The Port/Yard Interface and Transport. Below is a description of each:

Segment 1: Port/Yard Interface

The Port/Yard Interface (hereinafter referred to as the Port Segment), is essentially what happens to import cargo as it arrives and is transported through ports in Nigeria, or as it arrives at the port and leaves Nigeria as an export. The study analyzes two scenarios of the Port Segment of time and cost for imports: 20' container at Apapa Port and 20' container at Tin Can Island. Since time and cost data for exports was the same for Apapa and Tin Can Island, we analyze one scenario: the time and cost to export a 20' container for all of Lagos Ports. Where there was minor variation between the two ports, we averaged the data together to obtain one overall figure.

Segment 2: Transport

For imports, transport refers to all fees incurred for a container of goods once it leaves Nigeria's ports. For exports, transport refers to all fees incurred for a container of goods from departure in Jibiya until it reaches Nigeria's ports.

Assumptions underlying calculations

The following assumptions inform the analysis and calculations made in this study:

Terminal Data:

- As APMT handles 45% of Nigeria's total container traffic, and 50% of all imports to the country, data for APMT is used to estimate the time and cost for an average container imported at Apapa Port.

- Time, cost and operational performance for containerized imports at Tin Can Island Port are calculated using data on Tin Can Island Container Terminal, Ports and Cargo Logistics Terminal,

and 5-Star Logistics. Averages are calculated as a weighted average by volume of containerized cargo passing through each terminal.[45]

Average Truckload:

- Based on information provided by truckers and freight forwarders, the most common used truck to transport cargo in Nigeria is the 30 ton truck. Therefore, we assume the average truck load carries 30 tons. To obtain the cost of a TEU (twenty-foot container equivalent), we calculated the cost of one ton of a 30 ton truck, and then multiplied this by the weight of the import basket (18 tons) to get the cost per TEU for imports. To obtain the TEU cost for exports, we calculated the cost of one ton of a 30 ton truck, and then multiplied this by the weight of the export basket (17 tons).

Duties and Taxes:

- The analysis excludes commodity specific duties and taxes. Although they represent a significant portion of the importe total costs, they are not transportation or logistics-related costs. The only duty included in the analysis therefore is the Customs Inspection Supervision Scheme (CISS) fee, because it covers a logistics service provided by destination inspection companies.

Exchange Rates Used:

- The exchange rate used for purposes of this study is 1 USD = 157 NGN.

Interest Rate Utilized to Calculate the Financial Cost of Delay:

The interest rate utilized to calculate the financial cost of delay was arrived at by using an average of the maximum interest rate (as consolidated by the Central Bank of Nigeria) for January, February and March 2013, which comes to = 23.82%.

The calculation used to determine the indirect financial cost per hour of delay is therefore, the value of the export container, times the hourly delay, times the interest rate, divided by 365 (the number of days in a year), divided by 24 (the number of hours in a day).

Indirect financial cost per hour of delay = value of export container x hourly delay x [(interest rate/365)/24]

[45]TICT and 5 Star provided data for 2011. PCHS provided current average figures for 2012-2013. Weighted average by volume is estimated to be: TICT: 60%; PCHS 30%; and Ports and Cargo 10%.

ANNEX 3: INSTITUTIONS INVOLVED IN TRANSPORT AND LOGISTICS

Federal Ministry of Transport

The Federal Ministry of Transport is responsible for marine transport (ports and inland waterways), railways, and federal mass transit. Its mandate includes formulating policies, setting guidelines, supervising the provision of infrastructure, overseeing the development of management and professional manpower, ensuring security and standards, and working with domestic stakeholders and international organizations in developing the transport sector. The ministry has two service departments, one for maritime and the other for land transport, and three technical departments providing transport planning and coordination, human resources management, and finance and accounts management. Other units are dedicated to press, legal, internal audit, servicom (social contract between the federal government and its people) and anticorruption matters.

The Maritime Services Department (MSD) is responsible for coastal and inland waterways and all aspects of marine transportation. It is headed by a director and has four divisions: : Maritime Services, Ports, Shipping Development and Management, and Marine Pollution. The MSD is responsible for coastal and inland waterways and all aspects of marine transportation. The MSD supervises the five maritime parastatals, including the Nigerian Port Authority (NPA), Nigerian Maritime Administration and Safety Agency (NIMASA), National Inland Waterways Authority (NIWA), Nigeria Shipping Council (NSC), and the Maritime Academy of Nigeria (MAN).

Additional transport and logistics institutions relevant for the LAKAJI corridor include the following:

Nigerian Ports Authority (NPA)

The Nigerian Port System is regulated by the Nigerian Ports Authority Act No. 38 of 1999. The act created the NPA and gave it powers and duties to manage and administer Nigerian ports. According to the act, the NPA's functions are to:

- Provide and operate port facilities and services;
- Maintain, improve, and regulate (technically and economically) the use of ports; and
- Ensure efficient management of port operations.

NPA is a public entity which owns and administers land and water within port limits and is responsible for planning and development of port operational infrastructure, leasing and concession of port infrastructure, making recommendations on tariffs, nautical and harbor operations and hydrographic surveys, marine incidents and pollution, safety and security in common areas, port regulation and bylaw enactment and enforcement, day-to-day monitoring of operations, and enforcement of sections of the concession agreements.

Although NPA is responsible for regulation and operation of the port system, the Federal Ministry of Transport is still in charge of national policy formulation and planning for basic marine infrastructure and

for the development of related marine legislation. Although the NPA Act did not envision landlord ports,[46] it does provide for "concessions."

The NPA determines and sets the tariffs for all port services, subject to approval by the Minister of Transport. After a tariff is approved, it is published in the booklet "Simplified Tariff Structure" for port stakeholders.

Nigerian Maritime Administration and Safety Agency

NIMASA was created by the merger of National Maritime Authority and Joint Maritime Labour Industrial Council (former parastatals of the Ministry of Transport) in 2006. The agency's mandate derives from the Nigerian Maritime Administration and Safety Agency Act of 2007, the Merchant shipping Act of 2007, and the Coastal and Inland Shipping (Cabotage) Act of 2003. The responsibilities of NIMASA combine regulatory and promotional maritime mandates. NIMASA has three divisions: Finance and Administration, Maritime Labour and Cabotage Services, and Maritime Safety and Shipping Development.

Nigerian Shippers Council

The NSC, was established by the Nigerian Shippers Council Act of 1977 to promote and defend Nigerian shippers' interests in matters affecting the shipment of imports and exports to and from Nigeria. NSC is a corporate body with an 11-member board with representatives from the Ministry of Transport, the commodity Board, the Nigerian National Petroleum Company, the Nigeria Chamber of Commerce, the Nigeria Export Merchants Association, and the Manufacturers' Association of Nigeria. It also carries out a form of economic regulation by determining and approving tariff and rates in the port industry.

National Transport Commission

The reform of the transport sector entails introduction of the landlord model in one form or another in the various modes of transport, including ports. The landlord model allows for continued ownership of infrastructure assets by the government while commercial operations are ceded to private operators in a deregulated tariff regime.

The legal framework calls for a National Transport Commission under supervision of the Federal Ministry of Transport. The National Transport Commission Bill was drafted and reviewed by stakeholders and quality control, and is now awaiting the consideration and approval of the Federal Executive Council before being forwarded to the National Assembly for deliberation and passage into law.

Customs

NCS is the government agency responsible for collecting Customs and excise duties and other fees, charges, and levies associated with international trade. It is also responsible for the implementation and enforcement of some government trade and fiscal policies. NCS is headed by a comptroller-general who is assisted by five deputies, who head the departments of Tariff and Trade, Enforcement and Inspection

[46] In a landlord port the port authority owns the land and regulates the port while private companies carry out day-to-day operations.

Department, Service Support, Strategic Research and Policy, Human Resources and Development. Four of the five deputies are also zonal coordinators.

ANNEX 4: IMPORT AND EXPORT STEPS

Import Procedures to Nigeria: Port Clearance, Shipping Agent, and Terminal Requirements (2013)

Steps	Process Description	Responsibility	Total Fees/Costs	Average Time
Pre-shipment procedures:				
1	Importer obtains Pro Forma Invoice from exporter	Importer/Exporter	N/A	Before cargo leaves origin
2	Documentation provided by importer to clearing agent (Usually just the Proforma Invoice provided at this point. Original shipping documentation comes through banking system after shipment from point of export)	Importer	FF Fee: N100,000 on average for clearance; Processing Form M N50,000	Before cargo leaves origin
3	To generate 'Form M', clearing agent/consignee submits Pro Forma Invoice and shipment information, including commodity, HS code, quantity, gross weight, FCA/FOB value, mode of shipment, and other info to an Authorized Nigerian Bank.	Clearing Agent/Importer	N/A	Before cargo leaves origin
4	Consignee contracts insurance company to insure the goods to be shipped for 110% of the calculated CIF/CIP value of the shipment	Importer	Insurance fee	Before cargo leaves origin
5	Bank reviews submission, ensures that required documents are provided, endorses the 'Form M', and submits 'Form M' to inspection agency. Evidence of insurance cover required.	Bank	N/A	Before or after cargo leaves origin
6	Inspection agency assesses information on 'Form M'. If details are satisfactory, inspection agencies issue 'Approved Form M' document to the consignee by the bank with a transaction number. Consignee sends document to exporter.	Inspection Agency	N/A	Within 3 days (Before cargo leaves origin)
Shipment of the goods				
7	Exporter ships goods, and presents shipping documents to the nominated (advising/confirming) bank in the country of export. If the documents are compliant the nominated bank forwards them to the L/C opening bank in Nigeria. Docs include BoL, Final Invoice, Packing list, etc.	Exporter/Importer	N/A	At time of cargo departure/loading on board rather than departure in case of seafreight
8	Importer sends shipping docs to scanning company through the authorized dealer bank, for purpose of generating Risk Assessment Report (RAR)	Bank	N/A	Once docs are received from the opening bank by the importer
9	Inspection agency generates RAR (basis for assessment of import duty) and sends to Clearing Agent/Importer and customs	Inspection Agency	N/A	Within 5 working days
10	Importer obtains rotation number. 5 days prior to vessel arrival, the rotation number for the vessel will be available from customs. This is displayed at the terminal or can be confirmed on the phone. With the pro forma invoice and original bill of laden and e-Form M, the clearing agent/importer proceeds to DTI cafe for self-assessment	Customs/Terminal /Importer		5 days prior to vessel arrival

Arrival of Vessel				
11	Goods unloaded from (berth) vessel, transferred to the (yard) berth (ICDs are currently not often used)	Terminal Operator	N/A	10 days on average
12	Clearing Agent/Importer completes the Single Goods Declaration, and attaches all necessary documents (Final Invoice, CCVO, pro-forma invoice, bill of lading, RAR, etc) to customs.	Clearing Agent/Importer	N/A	
13	Clearing Agent/Importer pays duty and other tariffs through authorized dealer bank ("e payment")	Clearing Agent/Importer	1% FOB value customs administrative charge (also other tariffs based on HS	
14	Customs analyzes RAR, checks details of SGD, inputs SGD and manifest details (sent by the shipping agent once vessel has sailed) into ASYCUDA. Determines level of inspection required, and notifies the importer through "assessment notice"	Customs	N/A	
15	If "red," requiring physical inspection, clearing agent books inspection through the terminal operator. Terminal Operator liaises with customs. Inspection time is scheduled	Clearing Agent/Importer	N/A	
Inspection and Customs Release				
16	Physical inspection completed (if necessary) with required agencies and in presence of declarant. Customs issues release form	Customs	N/A	
Shipping Line release/Delivery				
17	Clearing Agent/Importer returns to terminal and submits 'Single Goods Delivery Release' that was issued by customs	Clearing Agent/Importer	N/A	2 days
18	Clearing Agent/Importer proceeds to invoicing counter to obtain shipping agent/terminal invoice. Presents original B/L to invoicing counter, or uses 'telex system' (electronic release). Invoicing counter gives importer the invoice (invoice will include shipping agent fee, terminal delivery fee, terminal storage fee, etc)	Clearing Agent/Importer	Debit note covers ALL terminal and Shipping line fees (except for demurrage, which is invoiced later after the container	
19	Clearing Agent/Importer either pays invoice electronically, or pays at a bank. Payment is verified by terminal, and shipping release is issued.	Clearing Agent/Importer	N/A	
20	Clearing Agent/Importer proceeds with copies of the releases (customs and shipping), invoices, and recepits to Terminal Delivery Order counter, where a "pre-gate ticket" is generated	Clearing Agent/Importer	N/A	
21	Importer presents pre-gate ticket to the terminal as valid authorization to pick up the container	Clearing Agent/Importer	N/A	
22	Truck picks up container, exits through Gate Control and NPA Security Agencies	Trucker/Importer	Some terminals charge a truck gate fee + informal fees at gate counter	5 hours to exit gate (but a full day to get from port to warehouse in Lagos, and truck turn around time is 2.5-3 days from port to warehouse and back to port to drop off container
23	Exit through Main NPA Gate	Trucker/Importer	Informal fees (Union)	

Notes:

10	DTI – Direct Trader Input, new way of lodging customs declarations a computer system called ASYCUDA++.
14	Once self-declaration is done at the DTI (broker's or licensed outlet) channels od release - green, yellow, red, etc) will be generated at the DTI level. (Customs may agree or opt for physical examination depending on the color)
19	APM has been identified as one terminal that allows for payment of terminal dues to be made after cargo release.

Export Procedures from Nigeria: Port Clearance, Shipping Agent, and Terminal Requirements (2013)				
Steps	**Process Description**	**Responsibility**	**Total Fees/Costs**	**Average Time**
General Exporter Requirements				
1	Register as an exporter with NEPC (assumes exporter has concluded a sales contract with a buyer)	Exporter	Application Form NGN 500; Registration fees: NGN 5000	Prior to shipping
2	Letters of clearance from OGAs (as applicable): Federal Produce Inspection Services, National Agricultural Quarantine Service, Veterinary Health Services	Exporter	N/A	Prior to shipping
3	Open Non-oil Export Proceeds Domiciliary account with bank	Exporter	Bank fees not included	Prior to shipping
Pre-shipment procedrues				
4	NXP filed with authorized dealer bank (commerical or merchant bank)	Exporter		Prior to shipping
5	NESS fee and Commodity Levys Paid (USD 3 MT for Sesame and Cashew and USD 5 MT for Cotton and Cocoa) to Federal Produce	Exporter	.5% FOB value of shi	Prior to shipping
6	Exporter provides NXP, NESS, and Commodity receipts to freight forwarder	Exporter/ Forwarder	Freight Forwarding fees: 100,000N	Prior to shipping
7	Forwarder gives NESS receipt to Cobalt	Forwarder		1 day
8	Forwarder files NXP with customs	Forwarder		
9	Customs evaluates price logic and issues Access Note	Customs		1 day
10	Forwarder arranges for pickup of empty container from the yard upon receipt of Access Note	Forwarder		2 days
Container arrives at Lagos warehouse for stuffing and inspection				
11	Stuffing of container. Cobalt should be present at the time of stuffing.	Exporter/ Forwarder/ Cobalt		1 day
12	Delivery of container to the port	Exporter/ Forwarder		2 days
Gate-in at Port				
13	Cobalt issues CCI	Cobalt		Within 3 days of stuffing, so within 1 day of arrival at the port
14	Preparation of SGD and sighting of CCI for customs at by gate in at the port. Customs issues clearance.	Forwarder/customs		1 day
Arrival of vessel, and import containers unloaded and transferred				
15	Container transferred to berth	Terminal Operator		1.2 days
16	Container loaded onto vessel	Terminal Operator		
17	Expoter/freight forwarder prepares requisite shipping and commercial documents (e.g. commercial invoices, packing lists, certificates of origin, transport documents [Bill of Lading, airwaybill, CMR note etc.] and presents to required parties, concludes payment.	Exporter / Freight forwarder		1-7 days

ANNEX 5: CALCULATIONS OF SHIPPING LINE COSTS PASSED ONTO THE SHIPPER

The cost analysis utilized in this baseline assessment is from the perspective of the shipper, who pays itemized fees to the following parties for import:

- Shipping Line/Agency
- Terminal Operator
- National and Regional Institutions
- Freight Forwarders/Clearing Agents
- Control bodies for inspection services – i.e. CISS fee for imports

And the following parties for export:

- Shipping Agency charges
- Shipping Line (Sea Freight)
- Control bodies for inspection services – i.e. NESS for exports

The shipping lines, in turn, pay fees to the terminal operators and to NPA. The shipping lines must recover these fees, and therefore pass them on to the shipper in Shipping Agency charges and freight rates. Fees paid by the shipping line include:

- Ship Dues or "Port Dues," paid to NPA
- Berth Rent, paid to NPA
- Cargo Dues, paid to terminal operators
- Other charges for use of port infrastructure: Harbor Dues, Environmental Protection Levys, MOWCA Levy, NIMASA levy, paid to NPA

We explain how we obtained the cost per TEU for each of these fees below, as well as our assumptions on how they are passed onto the shipper.

1. "Ship Dues," also referred to as "Port Dues." Paid to NPA:

Description of charge

These are charged per vessel, and are calculated based on the gross registered tonnage (GRT) of the vessel, the flag of the ship, and whether the vessel has already made a call in the port or country on the current voyage or not. Included in Port dues are pilotage charges and towage charges, which are compulsory. Charges are as outlined below:

Foreign Vessels, first call Nigeria = ($1.28*GRT) + $1176

Foreign Vessels, second call Nigeria, first in Lagos = ($0.938*GRT) + $1176

Foreign Vessels, second call in Nigeria, calling both Apapa and Tin Can = ($0.07*GRT) + $1176. The fee is charged per call of the vessel.

Since the shipping line must recover these charges, we assume that these charges are passed onto importers in shipping agency charges and are passed onto exporters in sea freight.

Calculation of charge

Since we were unable to obtain disaggregated data from NPA on average TEU capacity and GRT of container ships at Tin Can Island and Apapa, we calculated the average ship dues using a sample of ships that called Tin Can Island (2011), and the total number of all types of vessels that called Apapa and Tin Can Island, and the total GRT of those vessels.

Table 1: Sample of container vessels that called Tin Can Island Container Terminal (2011)

SHIP	LINE	TEU CAPACITY
MV MICHAELA S	MAERSK	2,500
MV WIDUKIND	CMA CGM	3,100
BUXSAILOR	ZIM	1,599
MOL Volta	MOL	2,135
MOL Valparaiso	MOL	2,135
MOL Sassandra	MOL	2,135
KING BYRON	MAERSK	1,674
MARK TWAIN	CMA CGM	3,398
MOL HONO	MOL	1,618
MCC JAKARTA	MAERSK	2,506
		2,280

Source: List of ships provided by TICT. TEU Capacity obtained through online research of ship names.

Tin Can Island Container Terminal (TICT) provided us with a list of container ships that called Tin Can Island Port in 2011. Using a sample of 10 ships, the average TEU capacity is estimated to be 2,280. Since we were not able to obtain a similar list from APM, for the purposes of analysis, we estimate that ships calling Apapa are approximately the same size. Our interviews suggest that this is a fair assumption.

Table 2: Number of Vessels and average GRT of vessels that called Lagos Ports in 2011

PORT	VESSELS	GRT	GRT per Vessel
Apapa	1,594	32,869,251	20,620.61
Tincan Island	1,628	32,702,604	20,087.59
Average	1,611	32,785,928	20,354.10

Source: NPA

NPA provided data on the number of vessels that called Apapa and Tin Can Island, and the total GRT of those vessels. We averaged these figures together to calculate the GRT per vessel calling Lagos Ports (20,354).

Based on this average and the formula above of (1.28*GRT) + $1,176, Based we estimate that the average dues per vessel are $27,229. With an average TEU per vessel of 2,280, the average unit cost per TEU is $11.94 ($27,229/$2,280).

This unit cost per TEU is divided by two to get the unit cost paid by the importer ($5.97) and the unit cost paid by the exporter ($5.97).

2. Berth Rent Paid to NPA

Description of charge

Berth rent is calculated based on the length of the ship and the number of days that the ship is at berth:

Rent = $2*Length of ship * Number of days

The shipping line must recover these charges, so we assume that rent charges are passed onto the importer in the shipping agency's destination handling charge (DHC) and onto the exporter in the ocean freight rate.

Calculation of charge

Table 3: Ports, Average Calls and Dues Paid per Vessel

Port	Average Length	Average call	Dues per Vessel	Unit cost (US$/TEU)	Cost to importer	Cost to exporter
Apapa	209	58	1003.2	0.401	0.20	0.20
Tin Can Island	209	63	1086.8	0.435	0.22	0.22
Average	209	60.5	1053.71	**0.421**	**0.21**	**0.21**

Source: Average Length – VHSS New Contex. Average call Apapa – NPA. Average Call TCI – interviews with terminal operators.

The Hamburg Shippers Association New Contex database classifies the average length of a Type 2500 TEU container vessel to be 209 meters. This type of ship is the closest approximation to the average TEU capacity observed in the sample of Tin Can Island ships above. Dues per vessel are calculated using the above formula, and then divided by TEUs per vessel to obtain the unit cost/TEU. Since costs are passed onto both importers and exporters, the unit cost per TEU observed by the shipping line is divided by two, to get the unit cost per TEU observed by the shipper.

3. Cargo Dues, also referred to as Yard Handling or Stevedoring fees. These are fees for handling the cargo at berth. Shipping Lines pay cargo dues to terminal operators. Fees are outlined below:

Table 4: Dues paid on Foreign Vessels

Cargo Dues	Foreign Vessels			
	Import		Export	
	20'	40'	20'	40'
Containers	90	130	70	100
General Cargo (per ton)	6.1		4	

Source: NPA Schedule of Tariff

We assume that the shipping line recovers these charges in the importers destination handling charge and the exporter's freight rate.

4. Charges for Port Infrastructure: Harbor Dues, Environmental Protection Levy, and MOWCA Levy. MOWCA levy is paid through NPA and passed onto the regional organization. Fees are outlined below:

Table 5: Charges for Port Infrastructure

Charge	Import			Export		
	20'	40'	General	20'	40'	General
Harbour Dues	80	160	2.5/ton	47	93	1.7
Environmental Protection	3.63	7.68	0.1/ton	3.63	7.68	0.1/ton
MOWCA Levy*	3	4	.10/ton	3	4	.10/ton

*Source: NPA Schedule of Tariff. *The assessment team was unable to obtain MOWCA Levy charges for exports directly, so calculations are pulled from USAID MARKETS LAKAJI Corridor Analysis.*

We assume that these fees are passed on to the importer in the agency destination handling charge and the exporter in sea freight rates.

ANNEX 6: LILYPOND CONTAINER TERMINAL TARIFFS 2011

Rates in Naira		
Charges	20ft (NGN)	40ft (NGN)
Terminal Delivery Charges(All-in-rates) Import	40,000	60,000
Container Unstuffing	42,000	55,000
Export Stuffing (Excluding stuffing Materials)	40,000	52,000
Empty Handling (All-in rate)	18,300	33,200
Equipment Maintenance and Repair	20ft (NGN)	40ft (NGN)
Man-hour Rate	3,000 /per hour	
Material Rate	5,000 PTI "run"	
Reefer Examination/Month	250,000	
Electricity -Daily	6,000	7,000
Storage Days (Imports)	20ft (NGN)	40ft (NGN)
0-3	Free	Free
4-14	1,250	2,500
15+	3,250	6,500
Storage Days (Exports)	20ft (NGN)	40ft (NGN)
0 -7	Free	Free
8days onward	400	800
Storage Days (Empty)	20ft (NGN)	40ft (NGN)
0-3	Free	Free
4days onward	400	800
Storage Days (Reefer)	20ft (NGN)	40ft (NGN)
1st Period (0-3days)	Free	Free
2nd Period (4-14days)	1,300	2,600
3rd Period (15+days)	6,500	13,000

Rates excludes 5% Vat
Import rates are billed to Consignees/Importers directly
Exports and Empty rates are billed to Shipping Lines
Tariff valid for 6months